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ABSTRACT

This handbook is intended to assist instructors of courses in emergency medical services (EMS). Discussed first are the role of the EMS instructor and EMS training. The second chapter deals with three learning principles (the principles of effect, exercise, and readiness) and four teaching steps (preparing the learner, presenting the information, applying the information, and evaluating the results). Examined in the next two chapters are ways of using the first three steps of instruction to teach a skills lesson and related information. The fifth chapter describes procedures for evaluating students' mastery of skills and related information, and the sixth chapter covers initiating and operating a course. Concluding the guide is a list of 121 useful insights and recommendations. Appendixes to the handbook include various forms for copying and lists of materials and sources of materials for EMS training. (MN)

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EMS Instructor's Handbook

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EMS Instructor's Handbook

By

Jim Cockrum

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Content Outline

This book can be read straight through in approximately 2½ hours. Even a quick reading will yield ideas that may help almost anyone do a better job as an instructor. This handbook, however, contains many recommendations and insights. Therefore, although it may be read quickly, it should be read carefully. Instructors may then select chapters and topics to study more thoroughly and use as guides for planning and teaching at a particular time or in a particular situation.

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Foreword

The writing of this material was not attempted until after an extensive review of the training materials developed by the U.S. Department of Transportation (D.O.T.) and other organizations. That material is for training students at the job levels of Emergency Medical Technician-Basic and Emergency Medical Technician-Paramedic. Curricula for other levels and types of prehospital emergency medical training were also studied. That review, and other research into the regulations concerning EMS training and certification, produced several insights that have shaped this book.

- Instructors for EMS students already possess the special occupational information and job skills to be taught. They are often required, however, to meet certain training and continuing education standards.
- The D.O.T. material itself is thoroughly done and well-thought-out, although in places it may require instructors to provide more information.
- Some instructors will not have sufficient insights and information concerning instructional techniques.
- It may not always be possible to enroll instructors in extensive teacher-training coursework.
- There is a need for a publication such as this, to help instructors get started right and to guide them as they continue educating others.

The recommendations in The EMS Instructor's Handbook are basically the same as those given over the years to other professionally competent people who are called upon to teach. They involve how people learn, how to teach them, and how to make certain that they have learned. The content has been adapted to fit the specific needs of EMS instruction.

Kathryn R. Allen, Ph.D.
Director, Extension
Instruction and Materials Center

Acknowledgments

The insights and efforts of a number of people have made this publication better than it would otherwise have been. As a planning group, and as individual reviewers, representatives from education and the EMS sector provided both general and specific recommendations.

The planning session for this book, in September 1983, was called by Dr. Jim Zukowski, then with the Extension Instruction and Materials Center, now with the Texas Department of Health. Dr. Charles Gregory and Mr. Eugene Weatherall were present from the Bureau of Emergency Management, Texas Department of Health. Representatives from community colleges included Ms. Sandra Mulkey of Weatherford College, Ms. Betty Till-Burton of Austin Community College, and Mr. David A. Surratt of San Antonio College. Other EMS educators present were Mrs. Debbie Cason, University of Texas Health Science Center at Dallas, and Mr. William Crouch, University of Texas Health Science Center at Houston. Mr. Bert Marcom represented postsecondary programs at the Texas Education Agency. Members present from the EIMC staff were Mrs. Catherine Williams, Mr. Patrick Ogle, and myself.

Reviewers for The EMS Instructor's Handbook included Dr. Zukowski, Mr. Eric Kunish of the Bureau of Emergency Management, Ms. Lyn Greenberg of the University of Texas Health Science Center at Houston, and Ms. Carol Goodykoontz of the University of Texas Health Science Center in Dallas. Their recommendations have been incorporated, to the benefit of the publication.

Jim Cockrum
Curriculum Specialist

1

The EMS Instructor and EMS Training

Picture this situation in the field.

Your ambulance is the first emergency vehicle to arrive at the scene of a two-car collision. Both cars are upright. A quick survey of life-threatening problems reveals the following patients:

In one car, the driver is unconscious and seated in the front seat fastened in his seat belt. The head of the passenger in the front seat has been thrown through the windshield. She is bleeding profusely about the face, is unconscious, and her respirations are shallow.

In the other car, the driver is seated in the front seat. He is sweating and appears to be short of breath. He complains of severe pain in his chest and left arm. The passenger has been thrown from the car. He is lying on the road moaning that he cannot move his legs. He appears to feel no sensation in his legs.

While you are deciding your next action, cars drive past the scene and a police siren approaches.

If this situation is familiar, and you know the correct sequence of actions to take next, you are one of the people this book is for. You have seen and experienced field situations that would petrify others without your experience and training. You were probably trained by someone like yourself, someone who had been there before and performed the tasks of an emergency medical technician.

This book is also for the many instructors of special medical subjects who are necessary for successful training of emergency medical technicians and other EMS personnel. What you teach affects what happens in the field.

Finally much of this information may help the people who supervise students in clinical settings and on ambulance runs. Your contributions, if you are in those situations, will be even greater if you understand your students and how they learn.

In all three cases, you are among the thousands of occupational instructors who have trained people in every conceivable vocation, in every country, for many years. You were chosen to teach because of your mastery of an occupation or subject, and your willingness to educate others. If you were lucky, you were able to take one of the many fine instructor-training courses offered across the country. In this case, you probable won't be reading this book—which covers much of the same ground. If you were less fortunate, you simply observed the teaching techniques used by academic instructors. For good reasons, their approach to teaching is often different from that used by occupational instructors. Copying some of their methods could greatly reduce your chances of success as an instructor.

This book was drawn from teacher-education courses for occupational instruction, and adapted to be used especially by instructors working with Department of Transportation materials. It explains the reasoning behind some of the features of that material, and explains how to make better use of those features. It gives some principles related to how adults learn and tells how those principles can be used in teaching. This publication covers a basic four-step plan followed in occupational instruction. It discusses the making and uses of task analyses that are the basis for such training. It explains how to use visual and audiovisual aids and how to question orally. Test development is discussed, as well as methods used to evaluate mastery of specific tasks or procedures. Topics also include initiating and operating a course, and organizing and managing classroom and other instructional areas. Each of these are best learned one at a time. But before that, it will help to look at some other matters.

Overview of an Instructional System

Most occupational instruction today is based on a device called a "behavioral objective." The term "objective" is quite familiar. It can be defined as "something toward which effort is directed." The term "behavioral objective" is much less familiar.

A behavioral objective is one that defines the behavior a student must be able to perform at the conclusion of a unit of instruction (fig. 1). A behavior is something that a person says or does that can be observed by someone else. Some examples

Fig. 1. An objective is something toward which effort is directed. A behavioral objective specifies the behavior desired, which can then be tested.

of the difference between objectives and behavioral objectives are:

Objective—The student will **understand** how cardiopulmonary resuscitation is done.

Behavioral objective—The student will **list** the steps and key points for cardiopulmonary resuscitation.

Behavioral objective—The student will correctly **perform** cardiopulmonary resuscitation.

By using behavioral objectives, instructors are able to spell out in detail (a) what is to be learned, (b) how it is to be learned, and (c) how to determine if the learning, described in behavioral objectives, has been accomplished. If planning is done well, it will be possible for the instructor and the students to know if the learning effort has produced the appropriate results.

A complete behavioral objective will explain (1) what is to be done or said, (2) the conditions under which the behavior is to take place, and (3) the criteria for determining if the behavior is well done. Such complete behavioral objectives are usually used for terminal behaviors—such as **performing** CPR. What constitutes "correct" performance would be spelled out in detail. The objective and the criteria for testing would be similar.

Many objectives do not include so much detail—particularly if the student is to only write or say something. There is little point in telling the conditions under which a list of the parts of a piece of equipment is to be made.

Because they both clarify what is to be taught and give a way to determine if learning has been successful, behavioral objectives have monopolized education. The term "objective," when used in this book, means "behavioral objective." Behavioral objectives have made possible entire systems of instruction that can be understood and applied by many different people.

The U. S. Department of Transportation materials, to which other organizations have contributed, form the basis for a system of instruction that is widely used. The materials are used to train people who will hold jobs at several levels of prehospital care. For the instructor, the materials help ensure that students will know what to do on the job.

The following is a description of what usually happens when a system of instruction based on behavioral objectives is developed.

1. Appropriate tasks to be performed at each level of employment are defined. The U.S. Department of Transportation (D.O.T.) material has specified these tasks. In the field, however, each person works under a designated supervisor, with a physician as the ultimate authority. Local or institutional rules affect the procedures that persons at different levels can perform. A procedure permitted to an EMT in one locality may be forbidden in another.

2. An analysis is made for each task (or procedure). Such an analysis requires enough detail so the task can be taught and practiced—and evaluated later for student success.

3. Significant information related to each task is identified. This "related information," used in occupational instruction, can also be identified as "must know" or "should know" information.

4. Objectives are written to cover the skills required for each task. These skill (S) objectives may be coded to show where they fit in instruction. For example, a skill may be coded 3.4.1.S to show it belongs in unit 3 of a specific module, topic 4 of that unit, and is the first S objective for that topic. Demonstrations used to teach such skills objectives may be similarly numbered.

5. Objectives are written to cover the knowledge required to do each task. These knowledge (K) objectives tell what knowledge a person should have at a specified point in training. These objectives are written in such a way that the instructor can be certain that the knowledge has been acquired.

6. The tasks, and the skills and knowledge objectives required for them, are used when organizing larger divisions of instruction called units or modules. A unit or module may be taught in a series of lessons or class periods. The person who plans the modules can assign objectives to specific modules so they will all be covered efficiently. The divisions are based on some logical topic such as the type of injury, or a condition, or a specific procedure, or the body system affected.

7. Textbooks and student guides are written to make information available on a convenient, uniform basis. Visual and audio-visual aids are also available, as are workbooks.

8. Knowledge tests are written to evaluate the student's success in learning the information taught.

9. Criteria are written to explain what is to be done in each step of each task. A criteria sheet may be used to judge if a task has been performed successfully. A score sheet is written for each task and used in evaluations.

10. Instructor's guides are written for each level of prehospital care. These guides, which include specific types of material, will be covered later in detail.

11. The guides are given out to the instructors; they, in turn, make their own plans for instructing.

12. At the local level, training is provided through "didactic" or classroom situations, experience in a clinical hospital setting, and work on an emergency services ambulance.

13. Task performance evaluations are made by instructors and/or examiners in local programs. Results may be used as part of the certification process.

14. Tests on related information are given at the state level and used in certifying students for specific employment.

15. The certified graduates move into the field, where their contributions and experience may be useful in finding ways to improve instruction for later students (fig. 2).

Sources of the System's Parts

The Department of Transportation materials were developed over a period of time, and for this reason, they may differ for the various occupational levels. They tend to be different in detail, but not in function—different in wording rather than in content.

Some parts of the system are developed by a state authority, an institution, or the instructor involved.

Some examples follow.

Local authorities may differ in what procedures or tasks are appropriate for a person with specific certification. Instructors may find it helpful to prepare some of their own task analyses. They may want to go into more detail, or develop an analysis using a different format that might be easier to use. Instructors may find it helpful to divide the unit of study into even smaller sections—for ease of teaching, learning, and evaluation. Because content outlines are based on topics to be taught, rather than detailed facts, instructors will often have to provide additional information. The instructor may need to develop knowledge tests for each unit or subunit. A state may have its own examination to give when determining which persons should be certified. A state may also develop the evaluation sheets and criteria used by examiners when evaluating skills performance. Instructors, local institutions, or states may find it helpful to use some kind of after-employment evaluation to determine the usefuless of the instruction that was given.

The Third Domain—Attitudes

So far, only skills and knowledge objectives have been discussed. In terms used by educators, the skills taught are often referred to as being in the "psychomotor domain." They require certain manual abilities, but they also place a demand on the mastery of specific knowledge. Perhaps it would have been better to call them "job performance objectives." But that wasn't done.

Knowledge objectives are often mentioned, by educators again, as being in the "cognitive domain," which involves factual information.

The third domain is the "affective domain"—in which attitude affects behavior. In some ways attitudes could have the greatest impact on career success. A special type of person is needed to meet the demands of the situation described at the beginning of this chapter. Other situations make different demands. The student has to learn in the formality of a hospital setting, where dress code and etiquette are important. In the field—at the scene of accident or injury—the student must be able to determine what is expected of him or her by a variety of people. Attitudes toward the occupations, the situations encountered, and the people served are important. Some attitudes are formed before training; others develop over a period of time—by following guidelines and the example set by the instructor.

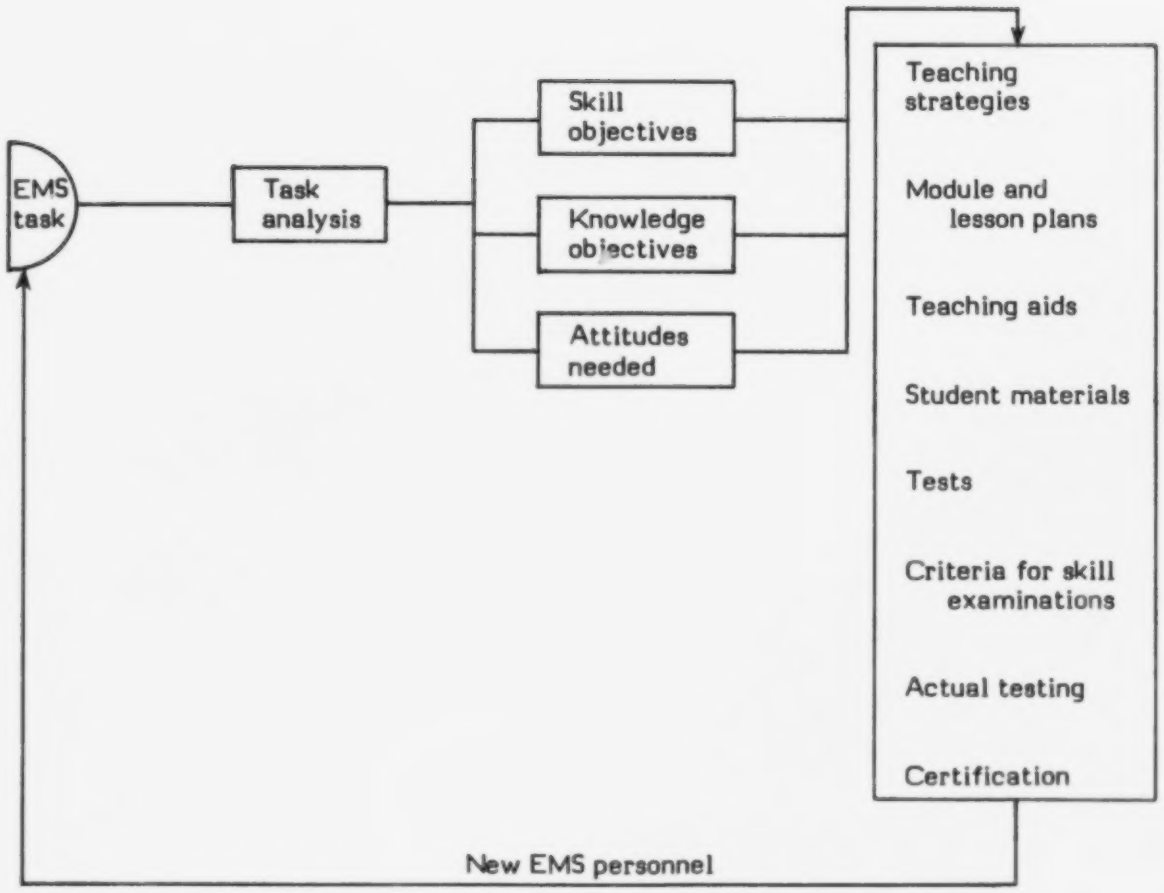

Fig. 2. Objectives help form the link between professionals who perform emergency medical services now and those who will perform them in the future.

Although it is possible to write objectives for the development of attitudes, this is seldom done. Quite often, though, a local training program will give some indication of the attitudes it expects students to begin with, and end with. The instructor can watch as attitudes develop or become evident during training. Neatness, punctuality, carefulness, and studiousness can indicate attitudes—as can many other behaviors. Often, counseling will help students develop their attitudes and meet their objectives in the affective domain.

The Importance of the Instructor

The instructor must realize she or he is very important although current emphasis on self-instruction may obscure this fact. People do learn without an instructor being present. But they may learn wrong, or take too long, or lose interest too soon. The many teaching aids available today make teaching more effective, but only if the instructor is able to use these aids skillfully. They are tools for an instructor to use. Only an instructor who carefully observes the progress of each student can be certain whether the joint efforts of teacher and learner are successful.

Although the teaching-learning process is a cooperative endeavor, the instructor as the professional present bears a major responsibility for the outcome. A time-honored motto is "If the student hasn't learned, the teacher hasn't taught." This may not be entirely true. Some students either can't or won't learn some things. Yet this saying is true often enough for the teacher to feel the burden, the challenge, and the reward of instruction. Through his or her students, a teacher reaches far to spread the quality of emergency care.

2

The Key Seven: Three Learning Principles and Four Teaching Steps

Learning and teaching are cooperative endeavors in which the instructor has a professional responsibility and the learner has a vital interest—or will have if the instructor takes advantage of several things that are known about learning. Three principles of learning and four steps of instruction help the teacher determine what to do at any particular time.

The three principles of learning are (1) **readiness,** (2) **effect,** and (3) **exercise.** The four steps of instruction are (1) **preparation of the learner,** (2) **presentation of the material,** (3) **application** of the knowledge or skill, and (4) **evaluation,** to make certain learning has taken place (fig. 1).

The Three Principles of Learning

The principle of readiness is that a person learns something when he or she wants to—when a need is felt or when he or she becomes interested.

The principle of effect is that a person should get some satisfaction from the effects of the learning process. Positive effects provide reasons for continuing to learn and reinforce learning. Satisfaction comes from success in learning. The more certain a person is of success, the more the desire to learn will be present.

The principle of exercise is that people learn from practice and like to repeat things they do well.

These principles are sometimes called the three laws of learning, because their impact is so likely to be repeated over and over. There are other sets of laws and principles, but these tend to be immediately and easily usable.

The three principles—readiness, effect, and exercise—lead to several recommendations that make teaching more likely to lead to learning.

The principle of readiness. Four things can be done to make a person more ready to learn.

1. During training for emergency medical technician or other prehospital jobs, the students' career goals can be used to maintain their interest. Concern for helping people in difficult circumstances can be a powerful motivator.

2. The instructor may need to provide other reasons for learning specific things. For example, spelling and vocabulary development are difficult for some people. They could easily shrug off the need for a precise vocabulary and accurate spelling—"I just can't spell." This tendency can be countered by pointing out the need for precision in medical communication. The fact may be stressed that small differences in wording can make big differences in the medical outcome. A student may concentrate more on learning a difficult procedure once its purpose is understood.

3. Students will also be encouraged to learn if they know just what will be expected of them. The objectives provided in the Department of Transportation material are quite helpful for telling students what lies ahead. Some programs provide students with complete lists of course objectives.

4. Finally, people will be more ready to learn if they are in a comfortable, well-lit, nondistracting environment.

The principle of effect. People get satisfaction out of learning in several ways. One is by experiencing success. Another is by the rewards which that success brings. The possibilities for helpful effects can be increased in seven ways:

1. The instruction can be methodical and well organized, with a clear outline that enables the learner to follow progress as it is made. Sometimes, the information to be learned is organized into a list, such as that in this chapter. Such a device is called an "advance organizer." It can even have a catchy title, such as "The Big Seven," to let people know in advance what information it includes.

2. Several senses can be used to aid learning. People retain—learn well enough to use later—only about 10 percent of what they read or hear. They remember about 30 percent of what they see, and around 50 percent of what they both see and hear. Some people learn better by hearing than by reading. Often something cannot be understood at all unless it is seen, and that is a primary reason visual aids are an important part of occupational instruction. Yet even though the picture may be worth 1,000 words, it is often necessary to explain the picture. The student may not learn the

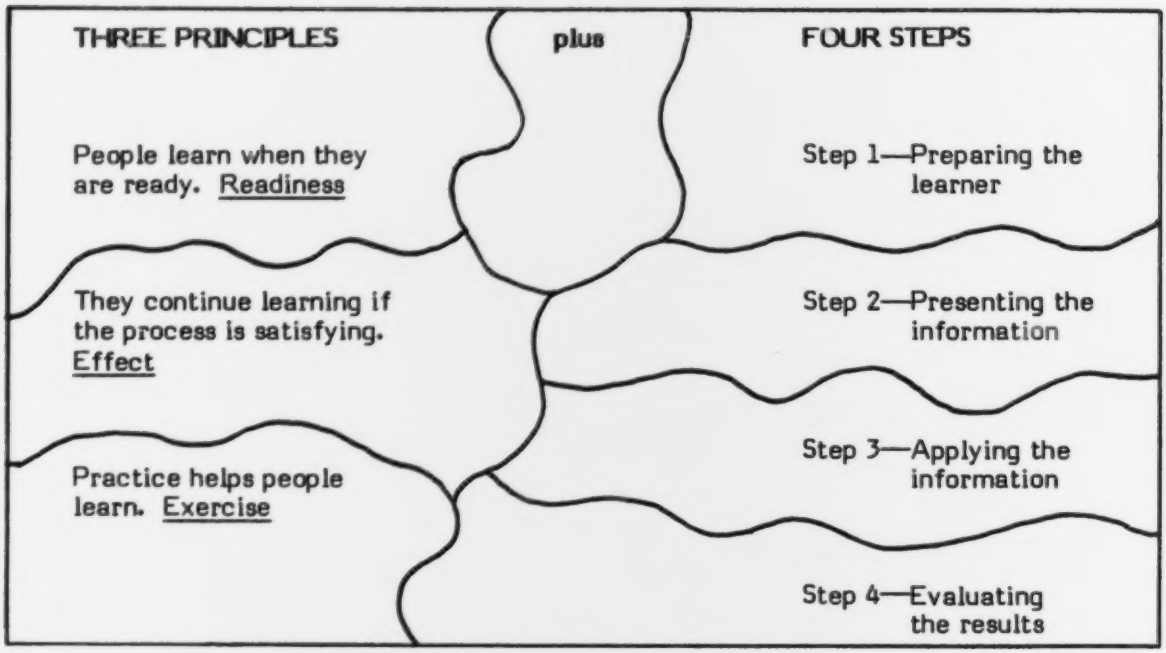
THREE PRINCIPLES
plus
FOUR STEPS
People learn when they are ready. Readiness
They continue learning if the process is satisfying. Effect
Practice helps people learn. Exercise
Step 1—Preparing the learner
Step 2—Presenting the information
Step 3—Applying the information
Step 4—Evaluating the results

Fig. 1. Three principles and four steps are pieces used to solve the instructional puzzle.

most important words—words that explain what is most important in the picture.

Even though these percentages are only approximations, a prudent instructor takes care to look for ways other than lecturing to present the information.

3. People tend to remember an even greater percentage of what they say in the learning situation (about 70 percent) and even more of what they both say and do (about 90 percent).

These percentages explain why an effective instructor shows and tells what is to be mastered—then gives the learner an opportunity to explain the task while doing it. Oral questions and student activities are vital parts of learning. The instructor may also use them as keys to knowing if correct learning is taking place.

4. The probabilities of successful learning increase if the instructor presents material in a certain sequence. Two proven sequences are from known to unknown and from simple to complex.

For example, people can see relationships between what they already know and what they are learning. The instructor finds out what people already know, then teaches from the known to the unknown (new) material. This is particularly helpful when teaching vocabulary, where new terms must be learned and the instructor must define them in ways that are clear to new learners.

In the simple to complex sequence, a piece of equipment may initially be intimidating to the learner. But by explaining one part at a time before telling how they operate together, an instructor can simplify the learning task.

5. Because people learn at different rates, success is more likely if the instructor can devise some way of individualizing the instruction—such as by using assignment sheets. Adults are less inclined to impulsive action. They may require time to think through processes and problems. Providing that time can yield rewarding results—for both the instructor and student.

6. Rewarding success directly also aids learning. This can be as simple as complimenting when compliments are deserved. (Insincere flattery won't work, but there are usually some triumphs to compliment.) On the other hand, criticism can impede learning. It should be avoided or done skillfully. A sincere compliment before criticism may help. It may be possible to let the learner critique what she or he has done. Correcting should not be overdone, should not be done in front of other people, and should not be done too quickly.

7. Learning is more likely to happen if the lengths of the lessons are reduced. A relatively short presentation may be tested sooner. Simple and easy lessons can provide sound basis for more complicated lessons given after learners have experienced success.

The principle of exercise. Practice helps people learn. Further, people like to do over again those things they have learned to do well. The more a thing is done, the better it will be done. The mastery that comes from practice is itself a rewarding effect.

Instructors can use the principle of exercise by doing two things:

1. providing plenty of time for practice, and
2. being certain that practice is done correctly in the early stage by observing and supervising what is done.

If a student learns to do a job wrong, it then has to be unlearned and retaught—and that can be a real problem.

The Four Steps of Instruction

Occupational educators commonly use a four-step approach to instruction. These four steps can be organized to form a "four-step lesson plan." A lesson plan should not be confused with a topical outline, as the instructor may see several possible lessons in the same outline. To prevent a single lesson from becoming too long, involved, and difficult, it is often necessary to divide related material into two or more lessons. At times, some of the information needed for success on a task may be taught separately from the task itself.

The four-step lesson plan is a remarkable tool. It is simple to remember, yet it can be carried out with all the refinements of which the instructor is capable. It provides a structure for defining what will be taught at a particular time. For example, the planning done for a test may help decide how much material a particular lesson should cover. Probably most important, the four-step lesson plan helps the instructor

(1) Page _____ of _____

(2) LESSON PLAN FOR: _____ (Task or Topic) _____

(3) CODING: _____ (where it fits in course outline) _____

(4) DATE PREPARED: _____

(5) OBJECTIVES COVERED: (from course outline)

(6) MEDICAL EQUIPMENT/SUPPLIES NEEDED:

(7) TEACHING AIDS NEEDED:

(8) EDUCATIONAL MATERIALS NEEDED:

(9) REFERENCES USED:

(10) WORKBOOK OR OTHER INDIVIDUALIZING AIDS:

(11) PREREQUISITE FOR LEARNERS: (if applicable)

STEP 1: PREPARATION OF THE LEARNER

STEP 2: PRESENTATION OF THE INFORMATION

Sub-topic (information) OR Step (task)	What to say, do, or have students do (information) OR Key point for step (task)

STEP 3: APPLICATION (What students are to do and/or say)

STEP 4: EVALUATION or FOLLOW-UP (What must be done to determine if the students have learned this particular lesson. May include actual test, list of oral questions, criteria for performing a task, etc.)

Fig 2. Basic types of content in a lesson plan. Blank forms suitable for copying are provided in Appendix A.

decide where the three principles of learning can best be used.

Step 1: Preparation of the Learner. The principle of readiness is applied in this step by the instructor taking time to convince the learners of the need for learning the specific material. Before the lesson begins, the instructor should evaluate the physical environment and adjust it to meet optional learning needs.

Step 2: Presentation. The instructor uses various ways to increase the chance that all of the learners will experience success—which is called for by the **principle of effect.**

Step 3: Application. The instructor provides exercises of drills that are needed to make the learning permanent—and thus uses the **principle of exercise.** From mastery of the material will also come satisfaction, as in the **principle of effect.**

Step 4: Evaluation. It is necessary to determine if training has been successful. If it hasn't, some things may need to be retaught. If training has succeeded, both the student and the instructor will know. Again, the **principle of effect** comes into play. Step 4, covered in Chapter 5, may be done a number of different ways.

Lessons are commonly planned by completing a form, such as that shown in figure 2. This plan has been modified for teaching either a task (skill) or a related-information lesson. All of the information on this form serves a specific purpose. Blank lesson plan forms are provided in the appendix.

1. The page designation (at the top right corner of the page) will show the number of each page and help the instructor determine if all pages are there.

2. The topic or task should be written in sufficient detail so that what is to be covered can be recognized immediately.

3. Code numbers are often assigned to parts of outlines developed by the Department of Transportation and other organizations. Use of a code number on a lesson plan points to where it fits in the outline. Code numbers also help in determining if coverage of material in the outline has been complete.

4. Recording the date that the plan is prepared helps the instructor determine which plan is the most recent or the most preferred.

5. Objectives can be taken directly from an official outline. They help plan, present, and evaluate the instructional results.

6. through 10. These help the instructor have everything at hand when it is needed or when making assignments to students.

11. Some lessons require prerequisites. This space is for those times when mastery of another task or topic should be completed before students attempt this lesson.

Step 1, Preparation of the Learner, gives information that the instructor intends to use to get the students ready for this specific instruction.

Step 2, Presentation, provides two columns. The column at the left lists subtopics for related information, or the steps in a specific procedure. For a related-information lesson, the right column would give detailed information for any subtopic, as well as plans for what is to be done to improve the instruction. The latter might be shown in parentheses ( ) or by CAPITALIZING. For a task, the right column would list key points that determine if the step is done correctly.

Step 3, Application, provides space for the instructor to set out what students should do or say to use or practice what is presented.

Step 4, Evaluation (or follow-up), details plans to determine if the students have mastered the material that has been presented. The evaluation may include copies of actual tests, oral questions, plans for observing task performances, or criteria used to determine if a task is done correctly. The term "follow-up" is provided here because in some occupations employees are observed on-the-job for a period of time after they pass any formal evaluation.

The way this form is used differs, depending on whether a procedure or related information is to be taught. These are, therefore, discussed in separate chapters. Some of the information presented in this chapter can be applied by completing the exercise given in figure 3.

At times an instructor may rely on a lesson plan prepared by someone else. Even then an understanding of the four-step approach can help—the instructor may see chances to improve how the lesson is given.

Place each of the recommendations at the left under the appropriate step, or steps, at the right.

A. **Readiness**
   1. Refer to career goals
   2. Give other reasons for specific items of information
   3. Let students know what is expected of them
   4. Have environment comfortable, well lit, without distractions

B. **Effect**
   1. Make instruction methodical, clearly organized
   2. Use several senses
   3. Give students chance to say and do things
   4. Teach from known to unknown, simple to complex
   5. Individualize where differences exist
   6. Reward success
   7. Keep lesson length reasonable

C. **Exercise**
   1. Provide plenty of time for practice
   2. Be certain practice is well supervised

Step 1: Preparation of the Learner

Step 2: Presentation

Step 3: Application

Step 4: Follow-up or Evaluation

Fig. 3. Part of the creativity of teaching comes from where principles can be put into action.

Blank lesson plans are provided in the appendix of this publication. They may be copied as often as desired.

Being Seen and Heard: The Instructor as Performer

The first part of this chapter, and the rest of this book, may make it appear that instruction is just a matter of planning and carrying out certain procedures. This is a long way from the truth. The instructor is the most visible element in the classroom, and the instruction is a performing art (fig. 4). Even a "great" lesson will fail if the teacher cannot get and hold the students' attention. Speech and body language have an enormous impact on instructional success.

Body language. It is helpful for the instructor to appear alert, energetic, and interested. It is not helpful to appear nervous. Here are some hints on how to be helpful and avoid being unhelpful:

1. Stand tall. An erect (but not stiff) posture gives a feeling of energy and interest in what is taking place.
2. Stand where you can be seen by everyone.
3. It's all right to move about, but not continuously and not too quickly. Slow movements are less distracting.
4. Look at the audience—to gauge the effects of what is being said, and to hold the students' attention.
5. Use meaningful gestures—such as pointing to something—for emphasis.
6. Avoid mannerisms, such as rubbing your hands together. These are distracting.
7. Change facial expressions as appropriate.

Spoken words. Both how the instructor speaks and the words she or he chooses are important.

1. The rate of speech can be varied, with somewhere between 100 and 150 words a minute recommended. If some subject may be hard to understand, the instructor should speak more slowly. A faster speech rate is suitable for information that is obviously easy to understand.
2. Speech volume can also be varied, from just audible and confidential to quite loud.
3. The general tone of speech should be conversational—not pompous or pedantic or preachy.
4. Except for technical vocabulary students must learn, select words that are already familiar to them.
5. Vary sentence structure. An occasional rhetorical (or actual) question may maintain or increase attention.
6. Speak with enthusiasm for and interest in the information.
7. Don't worry about occasional silences—they may be needed to give students a chance to comprehend what has just been said.
8. An occasional relevant humorous story may help keep interest up.

Fig 4. The instructor is the most visible thing in the classroom.

3

Using The First Three Steps of Instruction To Teach a Skills Lesson

Occupational instruction begins with a study of exactly what people should be able to do at the completion of training. The first step in planning the instruction is to analyze each procedure and task to be taught. Instruction ends when someone is satisfied that the student can do the required procedures and tasks correctly—and has mastered the information related to those activities. A simple document—the Task Breakdown Sheet—helps the instructor accomplish both the instructional planning and the evaluation of instruction given. The instructor may also want to get copies of the score sheets and criteria lists for each of the major skills taught in the specific EMS course.

The Department of Transportation material includes a wealth of information on how instruction is to be done and what is to be included in the instruction. However, the instructor may still have to obtain and include some of the necessary details. This effort should be done carefully and with enough completeness to ensure that the instruction will cover everything needed and will be uniform from one presentation to the next.

Here is one of two D.O.T. outlines for demonstrations related to one objective on secondary assessment. This one is for "Secondary Assessment of the Body and Extremities for Traumatic Injury."

Demonstration 3.3.2.S: Secondary assessment of the body and extremities for traumatic injury

Equipment: Student posing as victim. Stethoscope.

Procedures for teaching: Demonstrate so all the students can see and hear. Discuss each step as it is demonstrated. Suggest that students take notes.

Steps

1. Inspect the neck for:
   a. Retraction at the suprasternal notch
   b. Lacerations, ecchymosis, bites
   c. Tracheal deviation
2. Palpate the neck for:
   a. Tenderness
   b. Deformity
3. Auscultate the neck for air sounds in the trachea.
4. Inspect the thorax.
   a. Check elevation, symmetry, deformity
   b. Look for lacerations, punctures, ecchymosis
5. Palpate the thorax for:
   a. Symmetry, deformity
   b. Irregularities of the ribs
   c. Pain on compression of the thorax:
      (1) Anterior to posterior
      (2) Lateral to lateral
   d. Pain on compression of the clavicle
   e. Pain on cranial to chordal compression
   f. Pain on pressure to the costochondral junction
   g. Pain on compression of the costovertebral angles
6. Percuss the body (chest, back, or abdomen) for equal tone
7. Auscultate the thorax for:
   a. Lung sounds
      (1) Where to place stethoscope

(And so on)

That description of what is to be taught in a specific demonstration points to what information is needed, and to what the instructor can do to teach both the information and the skill itself.

It is important to remember that a major EMS skill may be divided for the purposes of teaching and practicing. Skill objectives in specific units may cover only parts of a major skill. They can be taught separately, even if later they will be combined in an examination for certification. In the example cited, the major skill is patient assessment. It is covered by several objectives and taught by several separate demonstrations. This particular demonstration is one of two used to meet a single objective. If a procedure seems too unwieldy or long for effective teaching (and learning), it can be divided into a series of tasks, and each task can be made the subject of a unit for demonstration. Each task should have a definite starting and ending point, and should be named in enough detail to be easily identified.

The list of things to do indicates that some related information may need to be explained before the skill itself is taught.

Page _____ of _____

TASK BREAKDOWN SHEET:

☐ MAJOR SKILL: _____

☐ PROCEDURE: _____

☐ TASK: _____

Coding: _____ Date Prepared: _____ Preparer: _____

IMPORTANT STEPS (What to do, in correct sequence)	KEY POINTS FOR EACH STEP (How, when, where, who, etc.) It's a key point if failing to observe it causes failure. It's a key point if doing it improves performance. Safety is always a key point.

Page _____ of _____

TASK BREAKDOWN SHEET FOR: _____

IMPORTANT STEPS	KEY POINTS FOR EACH STEP

Fig. 1. A form called a Task Breakdown Sheet makes it easier to analyze what is being done for a specific task.

The students will need to know information on the suprasternal notch, neck, trachea, thorax, ribs, clavicle, costochondral junction, and other parts. Visual and audiovisual aids will probably be needed in the related-information lesson to show lacerations, ecchymosis, tracheal deviation, and other problems.

During the actual skill lesson, the students will have to develop special abilities related to sight, hearing, and touch. Sight is used to identify lacerations, inspect the thorax for special problems, and know where to place the stethoscope when auscultating the thorax. Hearing must be trained to know what should and should not be heard when auscultating the neck. The sense of touch is involved in palpating the neck and the thorax. (**Note:** Because the list of steps given above is incomplete, so also are the possibilities listed. This is a series of examples, not a recommendation for teaching the material cited.)

Further, to understand the instructor at all the students will have to know the meaning of the terms inspect, palpate, auscultate, anterior, posterior, lateral, compression, and others.

This amount of information to learn may seem discouraging because so many details are required. But by thinking of the steps in a procedure as tasks, then an analysis can be made of each task for use in teaching and learning. Sometimes in skills training, specific objectives must by analyzed separately because of their complexity.

Preparing a Skills Lesson

Figure 1 shows a Task Breakdown Sheet, commonly used for skills instruction. Because it covers a relatively short unit of work, it is fairly easy to prepare. A series of such analyses can be placed in the recommended sequence for the procedure being demonstrated. A complete skill or a procedure can also be analyzed with this form, depending upon the box checked. A blank copy of this form, for your use, is in the appendix.

A Task Breakdown Sheet has a heading that should be keyed (coded) to the D.O.T. material or other topical outline. The heading identifies the major EMS skill, then names the procedure (or task) being analyzed. In the space for coding the instructor might list the skill objective number, for example 3.3.1.S.

For each step there will probably be one or more key points. A key point is any detail in the execution of the step that can make a difference between success or failure of the skill, procedure, or task. Key points cover such things as location of the hands; frequency with which something is done; care with which something is done; safety precautions to follow; how something should feel, look, sound, or smell; and any number of other details that can affect the patient or the person doing the job. Key points are usually given using adjectives, adverbs, or specific numbers—as in the number of compressions per minute in CPR.

At the top of the next page is an example of some of the key points for just one step in the CPR skill.

Developing a series of Task Breakdown Sheets will take time. But the time is well spent, because such a sheet can be used:

1. to show the related information that needs to be covered;
2. as the basis for the presentation step, Step 2, of a lesson (guiding what is to be said and demonstrated, as well as showing where visual or audiovisual aids would be helpful);
3. while observing students who are practicing the skill, procedure, or task in Step 3, Application;
4. by individual students in an adapted version so they can practice skills with a minimum of supervision; and
5. to evaluate how well the student can do the skill, procedure, or task, as in Step 4, Evaluation.

Even if the instructor knows the skill or procedure so well he or she can do it almost automatically, one or more Task Breakdown Sheets should be prepared. Otherwise, some detail may be overlooked in teaching or evaluating the students. A textbook or some official publication may help ensure the procedure is done correctly, with all details included. Another professional should watch as the procedure is demonstrated and while the analysis is done. This person may notice details the instructor no longer thinks about. The observer may also think of questions to ask about what is done in each step. Such questions might never occur to a person who does the procedure routinely. The observer may also ask

IMPORTANT STEPS (What to do, in correct sequence)	KEY POINTS FOR EACH STEP (How, when, where, who, etc.) It's a key point if failing to observe it causes failure. It's a key point if doing it improves performance. Safety is always a key point.
____ Position patient	Must be horizontal, supine (facing up) On a firm surface If repositioning is needed, do so carefully because of possible neck or back injury. Etc.

questions, and make notes, at places where a learner might become confused. In the long run, the care taken with a task breakdown should lead to more effective, and efficient, instruction.

Making a task breakdown is not the only preparation to instruction. Here are some others:

1. Make certain that the right materials, instruments, supplies, and equipment are on hand for the instructor and the students to use during the application step.

2. Practice the demonstration before the lesson. This will clarify whether something really is at hand, if the lesson is complete, and if improvements can be made—or problems avoided. Having to stop in the middle of a demonstration to look for something both wastes time and causes learners to lose interest.

3. Observe the demonstration area from where the learners will be watching during the demonstration. This will ensure that everyone can see what is being done.

4. Finally, arrange the work area as you would expect the group members to keep it. A clean and orderly workplace, with everything where it can be reached when needed, sets a good example for the students.

It may also help to set up the area as it might be in a field situation. Realism in the demonstration can be useful. An instructor may even arrange for distractions to occur during a procedure. However, this is not a good idea when a procedure is being learned for the first time. The student already has enough to think about.

Step 1, Preparation of the Learner

When the class convenes, the instructor should check to see that everyone can see the demonstration area and that the environment encourages learning. Then, the students should be told what procedure or skill is to be learned, and why it is important.

Students should also be told what will be expected of them at the end of instruction. Many skill (S) objectives are provided in available course outlines. Some are stated simply, others have more detail. However, even a simple objective may involve complicated behaviors and considerable knowledge. Here are examples:

1. Perform a patient examination for injuries.

2. Given the Military Anti-Shock Trousers (MAST), a patient or a manikin in the supine position, and a fellow student as an assistant, the student should be able to demonstrate the procedure for the application of the MAST. Also, the student should be able to demonstrate the procedure for deflating the MAST. In order to complete this objective, the student must..." (and so on).

Step 2, Presenting the Skill

In this step, the instructor demonstrates and explains each step in the skill, procedure, or task—one step at a time.

The key points for each step are stressed.

The Task Breakdown Sheet can be used as the two-column part of Step 2 in the lesson plan. However, it may also be necessary to make notes where something related to instructional technique is done. For example, places where visuals might help should be noted.

Instruction during the demonstration must be done clearly, completely, and patiently. There should be no more instruction than can be learned in the time provided.

Visual or audiovisual aids may be useful before, during, or after a demonstration. In particular, they can show something much larger than it would normally appear to a person just observing the instructor in action. A good example would be a drawing or photograph of the scale on a sphygmomanometer. More information on visual and audiovisual aids is given in a later chapter. Two points are especially useful at this time:

1. Be certain what purpose the aid is to accomplish, then be sure that it serves that purpose.
2. Be aware that commercially prepared audiovisuals may include more than is to be taught at a particular time. Feel free to show only part of an audiovisual presentation.

Step 3, Application

The third step in instruction is sometimes referred to as the "try-out performance" or "practice" step. This step gives students an opportunity to learn by doing—and perhaps by saying. A task or procedure is done over and over, under careful supervision, until its correct performance becomes a habit. For practice to be at its best, students should use real equipment, materials, supplies, and actual job methods. For realism and accuracy, students should use either a live "patient" or a realistic manikin.

Here are some tips on how to do Step 3:

1. Get learners started doing the task or procedure correctly. Let them demonstrate the task one step at a time, perhaps even explaining each key point related to that step. If a mistake occurs, correct it immediately before it becomes learned.
2. Be certain that the students always do the procedure or task in the same way.
3. Encourage students to think about what they do as they are doing it.
4. Have students repeat the same task over and over again, at frequent and regular intervals.
5. If time is short and they need to practice at some other time, arrange for them to have some kind of learning aid that will guarantee they continue to do the task correctly. Better still, arrange for them to have supervised practice at other times—until the task can be done correctly from habit.
6. Gradually withdraw supervision, until you are sure that the student is ready for the evaluation step.

Complimenting and Correcting Learners

In Step 3, compliments and corrections may be needed. A sincere compliment can make learning more effective. Correction may be necessary, but it can block or slow down progress, so correction must be done carefully.

These suggestions will help the instructor handle both corrections and compliments:

1. Avoid criticism. Nobody likes to be criticized, and most people want to learn. Avoid criticism given in the sense of "bawling someone out" for having done something wrong. It is more encouraging to show someone how they could have done something better.
2. Compliment before you correct, if you can do so sincerely. A deserved compliment given first can make the learner more receptive to the correction.
3. Let the learner do the correction if possible. Correction is never a pleasant experience, but when the person is induced to critique himself or herself, the factor of unpleasantness is almost entirely eliminated. First, compliment the learner, then ask her or him to think of anything that could have been done to improve the performance. If the learner can't or won't do so, the instructor may have to make a suggestion.
4. Don't overdo correcting. Good instructors exercise restraint when correcting. They know if they correct everything that isn't done quite right they will make the person nervous and damage self-confidence, and, instead of being helpful,

may hinder learning. For many procedures, however, there are steps or key points that must be done absolutely right. These are called "absolutes" in some evaluation approaches.

5. Don't correct someone in front of other people, if it can be avoided. This can be the worst fault in correcting, because it is both embarrassing and demoralizing. However, in the application step with a group it cannot be avoided. Correction in the situation should try to be done in a way that looks more like reteaching than criticism.

6. Don't be too quick to blame a student. If something wasn't done right, the fault may lie in the teaching.

7. Encourage your students. Compliments are essential in teaching, because they encourage learning. Use judgment in compliments, though, and do not overdo. They should be spaced to provide steady support for your trainees' morale. A person doesn't have to do a perfect job to deserve praise. Small improvements may merit a compliment.

8. Be prompt with compliments or corrections. Make them immediately after performance. Don't wait for an hour or until the next day. An additional compliment at the end of the day, however, can send a person home feeling successful—and satisfied that the instruction was well given.

4

Using the First Three Steps Of Instruction To Teach Related Information

The teaching of a skills lesson was discussed earlier in this book because occupations are based on the performance of specific skills. An analysis of a procedure to be learned shows what information should be taught. In a skills lesson, the instructor usually demonstrates the procedure slowly, carefully, and completely, explaining each step and the key points for that step as it is done. The learner, after seeing the demonstration and hearing the explanation, does the procedure under careful, and gradually relaxed, supervision.

A related-information lesson does not focus on doing a certain procedure. Instead, it provides the information needed to understand what is done and how to do it correctly. Information lessons are often taught before the skills they relate to, because knowing certain information makes it easier to understand the skills lesson. For example, students should study terminology and anatomy before the skills lesson in which it is used. Whether to teach information before or during the skills lesson depends partly on how much information is to be covered.

When giving a related-information lesson, these key points are important to remember and use:

1. Step 1, Preparation, may require more effort to make learners realize why the specific information is important. An example of its use in the field may help motivate the learner.

2. The instructor will most likely use a short, illustrated talk in Step 2, Presentation. Although some instructors recommend no more than 25 minutes, each instructor must decide the length of speech that best fits the situation and subject. A short presentation makes it possible to include application and test steps. It can also avoid confusion from too much, or less related, information. A class period may involve more than one lesson.

3. Also in Step 2, several types of teaching aids may be used—chalkboard, posters, drawings, overhead projector, videotapes, or even audiotapes.

4. Using typical EMS situations as examples may help when explaining the use of certain information. However, the curriculum covers a large amount of information and there is not much time for stories from the field. Situations should be selected carefully and covered concisely, if used at all.

5. Step 3, Application, allows learners to apply the information as it might be used in the field. It also gives them the opportunity to make some kind of overt (visible) response to the information. Saying the information and doing the procedures reinforce the learning. The instructor can begin to judge whether or not learning is taking place, and the learner can practice things that make retention over a period of time more likely.

6. Step 4, Evaluation, tests success in learning. Tests may be oral or written, given during the same period as the application step, or at a later time. The advantage of testing immediately after the application step is that testing makes it clear whether any re-teaching is needed. The disadvantage is the time needed for testing. An instructor may choose between testing for the specific lesson or taking questions from the lesson and including them in a unit test given later. The later test will check retention over a longer period of time. Testing and evaluation are fairly complicated, and are covered in detail in Chapter 6.

Preparing to Teach

Planning a lesson and preparing to teach it can begin with checking the plan for the unit that is to be covered. In time, all the objectives and information must be covered—but the instructor may elect to do that in more than one lesson. An example would be dividing environmental injuries so that heat exposure is taught in a separate lesson. The instructor could then use the topical outline and the objectives from the course outline. (This is just an example, it may or may not be a good division.)

The instructor should study the objectives and the information to determine how to prepare for the lesson. Figures 1A through E indicate some of the actions that may help learning occur. Only two objectives are shown, although there would actually be more. Objectives 3.1.1.K and

Page 1 of 5

LESSON PLAN FOR: Exposure to Heat

CODING: 3.1 **DATE PREPARED** 9/01/84

OBJECTIVES TO BE COVERED:

3.1.1.K Given a list of descriptions, the student should be able to select one that best describes (a) heat cramps, (b) exhaustion, (c) heat stroke.

3.1.4.K Given a patient suffering from heat cramps, heat exhaustion, or heat stroke, the student should be able to describe the treatment for the patient.

Fig. 1A.

Fig. 1A-E. Functions and possible content for specific parts of a related information lesson plan.

MEDICAL EQUIPMENT, SUPPLIES NEEDED:

TEACHING AIDS NEEDED:

Poster of signs, conditions, and treatment for conditions

(OR transparency masters to give the same information)

(OR commercially produced slide-audiotape set)

EDUCATIONAL MATERIALS NEEDED:

Handout describing situations, then asking which of the three conditions the patient has, and treatment indicated.

REFERENCES USED:

WORKBOOK OR OTHER INDIVIDUALIZING AIDS:

Have students do assignment #___ on pages #___ to #___ of workbook.

PREREQUISITE FOR LEARNERS: Completion of ?

STEP 1: PREPARATION OF THE LEARNER

Exposure to heat can cause three conditions which differ in their signs and treatment needed. It is important to distinguish between the three, so treatment can be given rapidly and correctly. At least one of the three is life-threatening.

Fig. 1B.

Page 3 of 5

STEP 2: PRESENTATION OF THE INFORMATION

Topics	Things to Remember to Say or Do
(Can be taken from course topical outline, and/or related text.)	(Instructor provides additional and more detailed information for each topic. This column may also include notes about when to use each aid or what oral questions may help reinforce the presentation.)

Fig. 1C.

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STEP 3: APPLICATION

(Tells what is to be done to get students to somehow use the information, to repeat it aloud, to write it down somewhere, or otherwise make an overt response to the presentation given.)

Fig. 1D.

Page 5 of 5

STEP 4: EVALUATION OR FOLLOW-UP

(May be just an oral question-and-answer session. Or may consist of a written examination prepared using the same approach to be used later in official certification exams.)

Fig. 1E.

3.1.4.K (fig. 1A) hint at the use of teaching aids for the presentation step, a handout for the application step, and a motivating statement for the preparation step. These aids and materials are listed in figure 1B, which also cites the workbook pages to be used.

The lesson plan (fig. 1C) shows two columns for the presentation step. This provides more space for the detailed information in the right column. Topics tend to be relatively short, and so are listed in the narrower, left column. This design leaves more space for notes.

In Step 2, Presentation, the instructor includes all of the topics for the subject being studied, plus necessary additional details. When writing down what is to be done, it may help to place that instruction in parentheses—as done in figure 1C. The instructor may also wish to use quotations around statements that should be made verbatim rather than paraphrased. The wording used in the right column will depend on how much information the instructor requires to remember everything that will be covered. In some cases, a word or two will trigger a more detailed picture of what is to be said. A plan prepared by one person, but for use by another, is usually more detailed.

For Step 3, Application (fig. 1D), the instructor plans some way for the students to use the information overtly. An overt action is something that can be detected—like answering a question out loud, or working out a problem on paper. Overt actions add "saying" and "doing" to the students' learning efforts.

As indicated in figure 1E, the last step in a lesson is the evaluation, follow-up, or test step. Although this is done last, it may actually be planned first. The instructor may go directly from writing objectives to designing a test that will show if each objective has been reached. An instructor will possibly consider each objective, the related test items, and the presentation of related information at about the same time in the planning stage. For example, Objective 3.1.1.K indicates that each learner must distinguish between the signs that indicate heat cramps and those that point to heat exhaustion or heat stroke. This leads to ways to word test questions and statements that must be made during the presentation. It also hints at the teaching aids that will be helpful.

Part of getting ready for class is gathering all the materials and supplies that will be used, and checking the room to be certain it is suitable as a learning environment.

Step 1, Preparation of the Learner

In this step, the instructor determines what information the students already know and how to get them interested in the particular subject being taught.

Finding out what students know about the subject that is about to be taught will help the instructor decide what areas need the most time and attention. However, EMS instruction often covers ground that has been discussed before because of the possibility that students have forgotten critical details.

Motivating may involve explaining why some information is needed. This is particularly true if a series of information lessons needs to be presented before the procedure related to that information can be taught.

Oral questions, often used in Step 1 to get students ready for instruction, encourage participation early—and participation also helps motivate people. Students can be asked what they know about the subject or why they think it is important.

Because oral questions are important in several steps, they are covered separately in Step 3, Application.

Step 2, Presenting the Information

For this step, the basic recommendations for teaching a skill should be repeated—teach slowly, carefully, and completely, one bit of information at a time.

In addition, the instructor may have to decide (1) what should be taught to the group as a whole, and what might be learned through individualized instruction; (2) where teaching aids may be useful, and what kinds of aids will be best; and (3) where oral questioning may be useful as an instruction technique. Each of these are explained in Step 3, Application.

Step 3, Application

This step requires that the teacher provide some method for the students to use or repeat the information learned. This can involve oral questions, directed activities

Page _____ of _____

INFORMATION SHEET FOR: (state lesson used in) _____

CODING: _____ **DATE PREPARED** _____

_____

(Title of information included)

_____

INFORMATION:

(This should be written so that the student can understand it. If medical terms not already studied are included, be sure to define them. Illustrations may be useful. Present the material in a logical sequence.)

Fig. 2. Information sheets make it possible to present additional information.

supervised by the instructor and provided on handout sheets, or the use of one of the several workbooks available commercially for EMS students.

EMS workbooks include activities such as answering multiple choice questions, making lists, completing sentences by filling in the blanks, matching items on several lists, doing vocabulary drills, and identifying objects in drawings. These activities may be keyed directly to specific chapters in textbooks. A title may also indicate where they fit into a course outline.

Group Versus Individual Instruction

EMS instruction is usually given to groups. However, there are times when it is preferable or even necessary to instruct students singly. Knowing how and when to best use both types of instruction will help the teacher do a good job. Special teaching aids have been developed to assist the instructor in working with students. Some of the advantages of group instruction:

1. It saves time. More people are reached at the same time, and information can be covered more quickly.
2. It provides uniform instruction. All learners receive the identical information.
3. It can develop team spirit, with the group learning to work together.
4. It can motivate individuals. Adults with common aims bolster each other's determination to succeed.
5. It may develop leadership.
6. It is especially useful for teaching basic facts and elementary principles. It is a good start for teaching common elements.
7. It can be used to teach skill lessons, if a group is small.
8. It can encourage peer teaching. Students can teach each other if, for some reason, the instructor hasn't succeeded with all of them.

Individualized instruction allows for the fact that people are different in many ways—including how, and how fast, they learn. Work done in individualized instruction is reviewed by the instructor to avoid or correct faulty learning. Some of the advantages of individualized instruction:

1. It makes teaching more thorough, even though it is often slower than group instruction.
2. It allows for differences in the speed with which people learn. A person who learns slowly can keep up with individualized material at his or her own pace.
3. It makes the task of instruction easier—only one person is being taught at a time.
4. It provides opportunities for remedial work. Individualized instruction is easier to review and correct, and to provide practice for.
5. Varied instructional techniques can be used to suit the needs of a particular student.

Often, both individual and group instruction are used for the same lesson. Steps 1 and 2 involve the entire class, while in Step 3, learners work as individuals doing practice exercises or drills.

Instruction given to individuals is often through directed activity, in which the student works alone but follows directions provided by the instructor. Another term for directed activity is supervised study.

One approach to supervised study is to have each learner locate information in reference sources, then use that information.

Directed activity: (1) supplements other methods of instruction; (2) saves time in teaching; (3) helps the slower student keep up; (4) enriches instruction for the advanced student; and (5) creates and maintains interest.

However, directed activity is not always helpful. It should not be used without the personal supervision of the instructor. Nor should it be used as a substitute for other teaching. It supplements, rather than replaces, the lesson taught by an instructor.

Two common learning aids used in supervised study are shown in figures 2 and 3 (blank forms for copying are in the appendix).

An information sheet (fig. 2) can meet a variety of needs.

1. If information is available in only a single copy, it can be duplicated in the form of an information sheet.
2. Information that is more up-to-date than that in the reference can be provided with an information sheet.
3. Supplementary information not in the reference can be provided.
4. If material is too lengthy, it can be condensed and printed on an information sheet.

Page _____ of _____

ASSIGNMENT SHEET FOR: (state lesson used in)

CODING: _____ **DATE PREPARED** _____

(Title of assignment)

INTRODUCTORY INFORMATION

(This motivates the student to complete the assignment. It should be a short statement.)

ASSIGNED READINGS:

(References used for this assignment.)

QUESTIONS, PROBLEMS, OR ACTIVITIES

(These should cover the activity adequately. Directions on how to do the assignment should be included. Questions and problems should be stated clearly and concisely.)

Fig. 3. Assignment sheets can be used to present information or to provide activities for the students' application.

5. Material from several sources can be consolidated.

Because an information sheet is to be studied, not followed, its content can be presented less formally. However, all information on an information sheet should be both interesting and easy to read, and clearly and concisely written.

An assignment sheet (fig. 3) presents additional information. It refers to a specific reference, then requires the student to use that reference to learn the information. An assignment sheet can also be used in the application step for repetition—for the "doing" and "saying" activities that aid learning.

Assignment sheets use a variety of techniques and provide a variety of student experiences. Their use is limited only by the imagination of the instructor. But what is appropriate for one subject, or for meeting one objective, may not be appropriate for another. Items usually included in an assignment sheet are:

1. a series of questions to be asked;
2. several problems to do;
3. drawings to analyze or label;
4. data to study and interpret; and
5. observations or investigations to make, and data to record.

Well-prepared assignment sheets indicate things to be done and advise the student on how to do them. A sheet of problems might have an example worked out. A sheet that requests data may have a suggested form for recording it in an organized way. Because assignment sheets call for action, they may include explanations of why an action has a specific purpose and worth.

Both information sheets and assignment sheets may be particularly useful in EMS training to help students learn the medical terminology. For this purpose they might even be handed out before the related lesson is presented. An information sheet is usually meant to help present information, so it is considered part of the presentation even if it is read separately out of class. Assignment sheets are generally considered part of the application, and are given out as soon as possible after the instructor's presentation.

Using Visual and Audiovisual Aids

The following two objectives point to the possible use of visual or audiovisual aids.

3.5.4.K. Given a minimum of five situations indicating combinations of patient conditions, vital signs, and identified problems, the student should recall the appropriate IV solution to be used, and the reason for its use.

3.5.8.K. Given a diagram of an intravenous needle (butterfly), or the actual needle, the student should identify and locate each of its parts. The student will successfully complete the objective by identifying and locating all four parts.

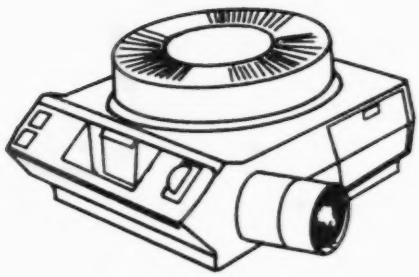
Visual aids are drawings, photographs, models, or diagrams which aid in teaching or learning information. Audiovisual aids have the prefix "audio" added because they come with a sound track—such as a tape cassette, or the sound recorded on a videotape or a motion picture.

The objectives mentioned above indicate different possibilities for visual or audiovisual use. 3.5.4.K might be visually aided by a series of posters, or a series of transparencies. They could show the combinations, then indicate what IV solution is available. Slides or filmstrips might also be used—in case it were helpful to show the patient. They might be less desirable if only wording is to be shown. The objective, in 3.5.8.K, has another imaginative, high-tech, possibility. It could be taught using computer-aided instruction. The student could be presented with a specific set of combinations, asked a question, then told if the answer is correct or not. If it is not correct, the computer could explain why. A number of such situations could be provided.

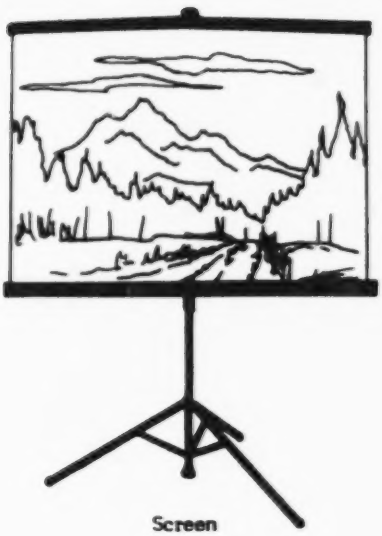
3.5.8.K, concerning the parts of a specific type of IV needle, calls for a large photograph, drawing, poster, transparency, or labeled color slide. The latter might be difficult to obtain or develop, and requires additional equipment. A motion picture or a videotape would not be advisable, because they are better for showing motion, and this situation requires that the object be still while being studied.

Visual or audiovisual aids can:

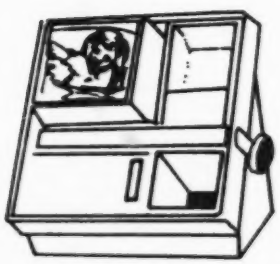
1. show something that is ordinarily hidden from view in the real object;
2. simplify a complex device, so it can be shown unit by unit (for



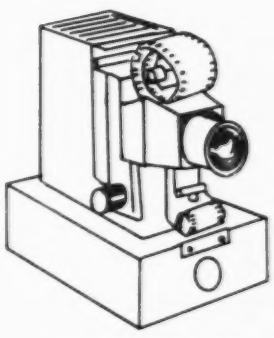
2x2 Slide projector



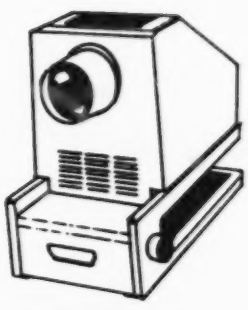
Screen



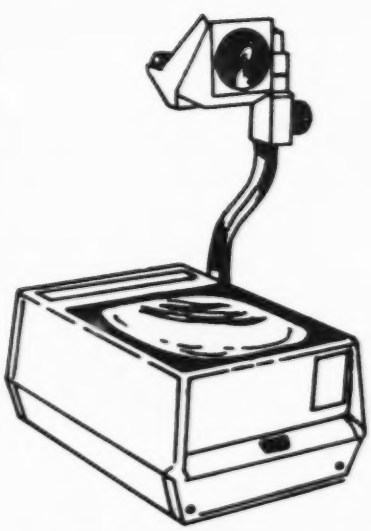
2x2 Slide viewer



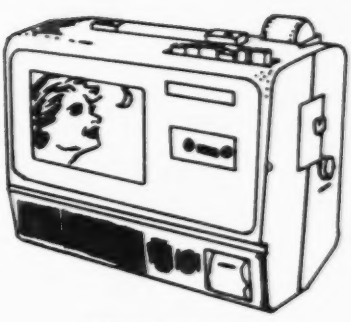
Filmstrip projector



Opaque projector



Overhead projector



Filmstrip viewer

Fig. 4. Special equipment makes it possible to project large images for groups—or small images for individuals, in the case of color slides or filmstrips.

example, an anatomical dummy that is dismantled to show how parts relate);

3. bring into class something that is too large in real life (as in a model of an ambulance);
4. show the relationship between parts or units;
5. magnify an object that is too small to be seen easily by the entire group at once, or that might not be seen clearly by even one person up close;
6. illustrate a scientific principle;
7. demonstrate a motion that is difficult to describe (An objective that refers to a technique to be learned may call for showing a motion done a certain way.); and
8. compare something new to something the learner is already familiar with (show that it is like or unlike, bigger or smaller, and so forth).

There are four types of visual or audiovisual aids. These may be useful in almost every lesson. They are:

1. display aids, including chalkboard, pads of large paper, posters, cartoons, flip charts, and permanent wall charts large enough for the entire group to see;
2. three-dimensional aids that include the object itself, a part of it, mockups, and models;
3. projected aids that are enlarged on a screen with a projector, including colored photographic slides, film strips, motion pictures, transparencies for overhead projectors, and objects or sheets projected with opaque projectors; and
4. aids used with video terminals, including cameras for recording student performances, videocassette units, closed circuit television systems, and computer software programs.

Each type of aid has its advantages and disadvantages.

Display aids are suitable for showing to an entire group at one time. Chalkboards or pads of large paper can offer space for sketches, diagrams, outlines, definitions, directions, summaries, and assignments. Posters and cartoons arouse interest and attract attention. They are usually used to teach only one or two points—providing emphasis of those points. They can also help motivate in Step 1.

"Wall chart" is the term generally used for large permanent displays. They may show either pictures or printed information, and are used to: (1) show what an object looks like; (2) explain how parts work together; (3) teach how things relate to each other; (4) show useful information to an entire group at one; and (5) summarize important facts being taught.

Actually, the nonpermanent chalkboard and pads of paper serve the same basic purposes as posters, cartoons, and wall charts. In selecting which is best, the instructor must consider how many times an aid will be used, and how much work will be needed to develop it. A chalkboard would be adequate if a simple drawing is to be drawn over and over again—but doesn't require much time to draw. If a drawing is more complicated and takes more time to draw, its use must justify the time to make it more permanent.

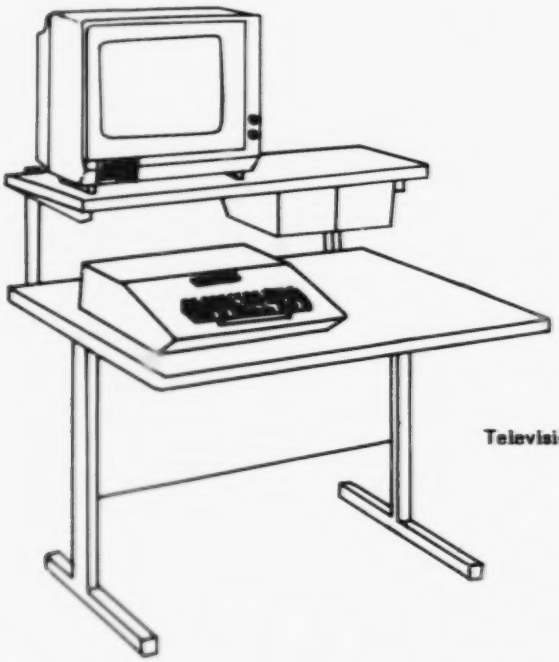
Three-dimensional aids are useful if the actual object cannot be brought into the room, is too small to be seen by everyone, or is not obtainable. A model can be seen, touched, and examined—and can often be operated. Some models show cross sections of the real thing, or have cutaway portions to show internal parts. A model can be made to move, to demonstrate action.

A mock-up is an unnatural arrangement or layout of the real parts of a mechanical object. Often the parts are mounted on a panel. Mock-ups are valuable for showing how things are related, and how they operate when power is applied.

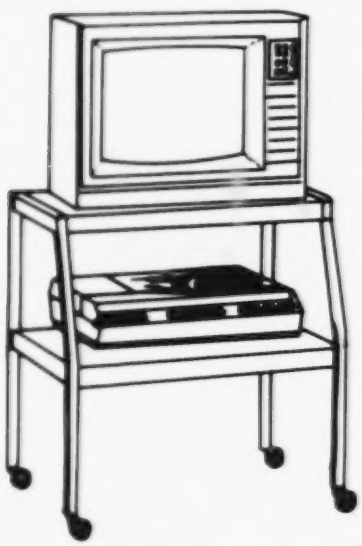
Projected aids are useful for group instruction. Some are also useful for individualized instruction in a study carrel. Projected aids can be easier to transport and store than display aids or models. Each type of projected aid (fig. 4) has advantages.

1. Color slides can show great realism. They are relatively cheap to make or buy. A slide show can be changed easily by the instructor—by adding, removing, or rearranging slides at will.

2. Filmstrips are also color photographs, but the individual pictures are left together in a long roll and used in a filmstrip



Television set with computer



Television set with VTR (video tape recorder)

Fig. 5. Television sets or CRTs are finding more and more use delivering instruction.

projector. Filmstrips store even more compactly than slides. They can often be purchased from audiovisual companies, especially if the filmstrips are on subjects with wide usage. They may even be cheaper than slide sets. Filmstrips usually come with audiocassettes for sound narration.

3. A special type of projector, called an opaque projector, can be used to project an image on an opaque sheet of paper, or an actual object, on the screen. Although opaque projectors require little or no preparation time for what is to be projected, they are not commonly used today.

4. Overhead projectors, on the other hand, are widely used today. They project an image on a large sheet of plastic onto a screen. One reason overhead projectors are popular is that many copying machines can make plastic transparencies quickly and cheaply. Transparency masters of drawings, photographs, or printed material can be made on ordinary white paper. Once a master is made, the instructor simply copies it onto a plastic transparency sheet. Transparencies offer great flexibility. Often, they may cover just a few point that need to be stressed. However, they have one very common problem. The maker may not use type large enough to be read at the rear of the classroom. Typewriter type is almost never large enough to be seen. Keep in mind the size of the room that will be used—then check out one or two transparencies to find what size the words should be to be read.

5. Motion pictures can create great realism. They are often used to (1) give an overall impression of a situation; (2) avoid noise distractions that would be made by visiting the scene of action; (3) show something that is happening at a distance; (4) avoid having students get in the way by going to the actual site; (5) enable students to get a safer, preliminary view from the film; (6) help motivate or develop positive attitudes.

For this last use, motion pictures should be reviewed thoughtfully. A motion picture may fit one group well, but not another.

Aids used with television receivers, monitors, or receiver/monitors are similar in their applications to motion pictures (fig. 5). They differ in that television images are generally smaller and do not have the quality of a large image projected by a 16 millimeter motion picture projector. Television aids can be conveniently set up for use by individuals or small groups. For individuals, television aids are often used with individualized instruction manuals by students working in study carrels. Videotape players/recorders produce the sound and images. Television CRTs (cathode-ray tubes) are also being used increasingly by people studying with computer-assisted instruction. The computer can be attached to a television, or may have its own CRT. Computer-assisted instruction works well with practice and drill exercises, and when a series of decisions by a student can lead to alternate results—as when deciding on treatment. EMS training will probably provide a good market for computer software, as it already has for videotapes. Computers can also control videotape players and other devices that aid instruction, so some sophisticated mixed applications can be expected.

There are ten characteristics which a good visual or audiovisual aid might have (depending on its type). Six things should be done with teaching aids before class. Six things can be done during class to make the aid(s) more effective. Finally, even if the only aid to be used is a chalkboard, ten recommendations can improve the use of that aid.

Ten Characteristics a Good Visual Aid Might Have Are:

1. It should clarify something that cannot be clarified without it—explain an idea; show how something looks, or where it is located, or how it relates to something else; or present a sequence to be learned.

2. The images should be large enough to be clearly visible to the entire group.

3. Lettering should be large enough to be read by everyone.

4. Terms that appear on the display should be understandable to the viewer. If they are unfamiliar, the terms need to be explained so they can be learned. If they don't need to be learned, other words might be better.

5. Important parts should be accentuated by bright spots of color or some other means. However, mere decoration or other distractions should be avoided.

6. The aid should be made to scale, with its essential parts in proper proportion to avoid confusing learners.

7. Good materials should be used to withstand constant usage.

8. The aid should be well made and carefully finished.

9. The aid should be mounted to make it easily portable.

10. The aid should be protected in some way (e.g., paint, shellac, plastic, cellophane, or other materials.)

Six Things To Do With Teaching Aids Before Class:

1. Know what each aid is to accomplish. Preview each aid to make certain it will meet specific needs. This is particularly true if aids developed by someone else are to be used. It may turn out that only part of an aid may be useful in the lesson.

2. Plan what to say about the aid. A few words may be needed to introduce it. Then it is advisable to explain what it will show. Otherwise, students may not notice what is most important to learn. Finally, a summary after showing the aid may also reinforce learning.

3. Rehearse using the teaching aid and saying the comments that will go with it.

4. Have everything ready to use. For projected aids, check the equipment, have a spare bulb, and arrange seats and screen for best viewing. The showing will be more effective if the projector is ready to go, without taking any time during the lesson to set up.

5. If chalkboard drawings are complicated, draw them on the board beforehand. They may be drawn very lightly, so the lines can be drawn over as the aid is being used, or drawn as they will be used.

6. Cover any display aids or three-dimensional aids so they will not distract the students.

Six Pointers For Making Aids More Effective During a Lesson:

1. Don't let aids substitute for the instructor. Use aids, don't just show them. Make explanations. Ask questions. Have group members explain them in the application step.

2. Show each aid at the proper time in the lesson. Keep it covered or hidden when it is not in use.

3. Speak to the group—not to the teaching aid.

4. Do not distract the students by passing models around while they are being discussed. Show them close-up later.

5. Before a motion picture, videotape, slide presentation, or filmstrip, explain what the students are to learn. Otherwise they may miss the important points. It may help to require note taking for at least the major points made by a projected aid. After the showing, summarize what was shown.

6. Reshow a film or other projected aid if it is necessary to teach something that has been missed.

Ten Rules For Effective Chalkboard Work:

1. Do not crowd the chalkboard. A few important points make a vivid impression.

2. The material should be simple and the statements concise, with no more words than are needed.

3. Plan chalkboard presentations ahead of time. Layouts can be kept with the lesson plan.

4. Before the group meets, have everything ready—chalk, eraser, layouts, and other items.

5. Check lighting to avoid chalkboard glare.

6. Use color to emphasize important points. Chrome yellow or pale green are especially good.

7. Print all captions and drawings large enough so they can be seen from the rear of the room.

8. Erase all unrelated material as new material is added. Use a board eraser or cloth.

9. Keep the chalkboard clean.

10. Prepare complicated layouts before the group meets.

A few general points apply to both selecting and making aids:

1. Before selecting or making an aid, be certain what points you want it to teach.

2. Select the type of aid that fits your requirements and capabilities. The most expensive and complicated aid may not be the best for a particular use. On the other hand, it may be. Generally, use as simple an aid as will do the job.

3. Search through the teaching points to find where training aids are most needed. Points that are difficult to put across need aids the most.

4. Remember that the best teaching aids are made to teach specific points, and are used with words adapted to the instructor's purpose.

Oral Questioning

Experienced instructors use oral questions for several purposes. They can be used to motivate and interest learners—or to find out what learners already know. Questions can encourage learner participation. After instruction, or even during instruction, oral questions help determine if learning is taking place. They provide quick spot-checks for effectiveness of instruction. A question can clarify or stress a point, and can help retain students' attention. Questions are often used to review material.

By following four rules, the instructor can ensure that questions are used effectively.

1. Answering should require thought. A learner should not be able to answer unless the information is understood.
2. A question should be brief and easily understood. If it appears not to be, it should be rephrased immediately.
3. A question should be limited to one main thought.
4. A question should have one specific purpose, and that should relate to the subject at hand.

The process of asking a question usually has a specific order.

1. The question is asked.
2. The instructor allows everyone a chance to think about the answer.
3. Then the instructor selects a person to answer.

When the question is asked without calling on someone, everyone has to think about the answer in case they are asked to respond. A routine should not be used in selecting the person to answer—that can also cause people not to think until they believe their turn has come. Questions should be answered by a trainee only after her or his name is called. Concerted answers should not be allowed.

Remembering the basic words used in questioning will help ensure that questions cover all aspects of a subject well. The words are **why, what, when, who, which, where,** and **how.** They lead to questions similar to those that follow:

Why is this necessary?

What should be done?

When should something be done?

Who is responsible for doing a procedure?

Which cause is most likely in this situation?

Where is something located?

How is something done?

Questions don't always require a question mark. Some begin with commands such as "define," "summarize," or "list."

Probably the most useful thing to remember is to ask questions that lead to answers that emphasize what needs to be emphasized.

Teaching Terminology

EMS personnel have to master a highly technical and precise vocabulary. Here are some recommendations that will make teaching terminology more effective:

1. If terms are to be used several times during a lesson, define them early—perhaps before the lesson. This avoids slowing instruction to explain them later.

2. If objectives include learning certain words, define each word at the time it is introduced. For example, the name of an item of equipment can be taught when it is first shown.

3. Make use of both hearing and sight. As the word is spoken out loud, also show it on flash card, poster, chalkboard, or similar aid.

4. Teach students how to pronounce the terms, because they are often spoken in EMS situations. One way is to use phonetic spelling; another is to repeat each word several times. Both ways are probably necessary.

5. Provide for vocabulary repetition in some way. Terms can be reviewed in several lessons. An audiotape of terms might be made available. Terms can be put on posters and displayed in the room.

6. Provide for application; have students say words aloud several times. Vocabulary lists to take home can help, as can time during class to use the terminology.

7. Make use of the prefix, suffix, root word approach in one or more lessons. This is common in teaching medical terminology,

because so many words are created by using common roots, prefixes, and/or suffixes.

8. Always stress the importance of mastery—even brief confusion can cause problems. Mastery is necessary both in written reports and in oral use between personnel.

5

Step 4, Evaluation

Evaluating Skills

The ability of an EMS student to perform certain skills or procedures is usually evaluated more than once during training.

After a specific skill is demonstrated by the instructor in Step 2, Presentation, the student will practice that skill in Step 3, Application. This is not an evaluation, because students are not graded and the teacher or assistant instructors intervene at any time to keep a student from practicing incorrectly. However, it is similar in that the student's practicing may be checked against a Task Breakdown Sheet, which lists steps in the correct sequence and with key points for each step.

After the application step, an instructor may arrange for other practice sessions. Some skills or procedures are learned best if practiced more than once over a period of time. When students feel they are ready for an actual evaluation by an instructor—or when the instructor feels they should be—a formal evaluation may be given.

In Step 4, Evaluation, the student does the skill for a specific lesson while the instructor scores steps and key points. The sequence of steps is usually important, as are key points for each step. Some steps and key points are "absolutes." If they aren't done correctly, the entire evaluation is failed. Other factors may be scored on a sliding scale.

The instructor has two goals for Step 4, Evaluation. One goal is for students to be so capable that they can perform perfectly under pressure in the field. For the evaluation in Step 4, the factors covered will be for the specific objectives that have just been taught. The second goal is to make it possible for students to pass the official certifying examination. In such an examination, the skills from several lessons may be combined. For example, "Mechanical Aids for Breathing" has four parts in the Texas exam. Each of these parts may have been the subject of a separate lesson. An even more complicated group of skills is covered under "Patient Assessment and Management." A state's official score sheet and criteria list may help the instructor determine how to score the evaluation for individual lessons.

Figure 1 shows a score sheet and a criteria list from the Texas Department of Health. The score sheet lists factors that should be scored, in the sequence they should occur. The criteria list notes that Steps 4 and 5 should be done before compressions begin. Also, the examiner scores for such factors as when something should begin, how often it should be done, and where the hand should be placed. Slightly different arrangements may be used on other score sheets and criteria lists, but they all give useful information for planning lesson evaluation steps.

For any type of skill performance test, certain procedures or standards will make grading fairer and more complete. These are:

1. Have a score sheet and a criteria list.
2. Take steps to be certain all students get the same instructions. (It may help to have written or typed instructions to hand out.)
3. Make certain that students know on what material they will be graded.
4. Keep testing conditions the same from one student to the next.
5. Have a means for making accurate measurements, if accuracy is required, in such factors as elapsed time.
6. Avoid making students feel tense.
7. Do not give instructions during the evaluation, other than those needed for clarifying instructions.

Step 4, Evaluating Related Information Learning

The development of a good test of related information begins with the answers, or results, expected. The instructor has to decide just what the lesson, unit, module, or course was intended to teach. Four different lengths of instructional divisions are given here because an evaluation of some kind may be made at the end of any one—or several—of them.

In any case, the instructor (or some other evaluation developer) begins by analyzing the knowledge objectives stated for each instructional unit. It may be necessary

IN A FINAL SKILL

EXAMINATION, A

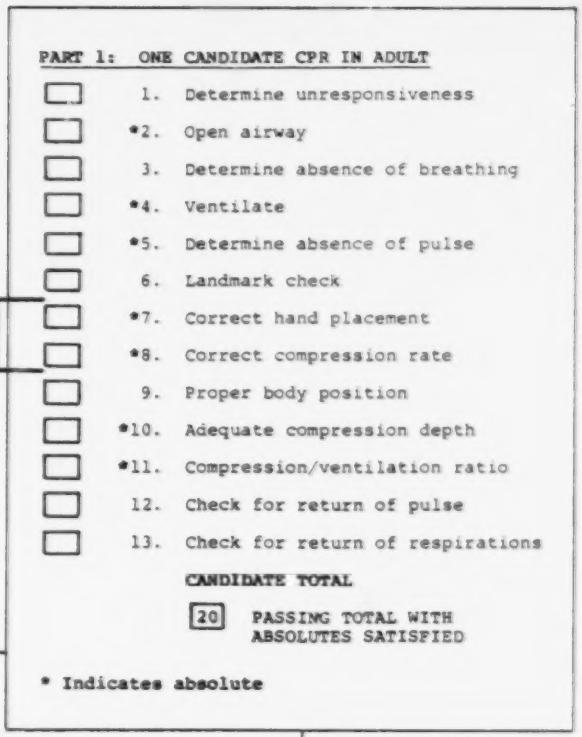
SCORE SHEET TELLS

WHAT IS TO BE TESTED,

AND A CRITERIA SHEET

TELLS WHAT STANDARDS

MUST BE MET.



PART 1: ONE CANDIDATE CPR IN ADULT

☐	1.	Determine unresponsiveness
☐	*2.	Open airway
☐	3.	Determine absence of breathing
☐	*4.	Ventilate
☐	*5.	Determine absence of pulse
☐	6.	Landmark check
☐	*7.	Correct hand placement
☐	*8.	Correct compression rate
☐	9.	Proper body position
☐	*10.	Adequate compression depth
☐	*11.	Compression/ventilation ratio
☐	12.	Check for return of pulse
☐	13.	Check for return of respirations

CANDIDATE TOTAL

[20] PASSING TOTAL WITH ABSOLUTES SATISFIED

* Indicates absolute

CRITERIA

ADULT CPR

(Type of mannequin whith which candidate was trained must be used.)

NUMBER BELOW CORRESPONDS TO NUMBER ON SCORESHEET.

PART 1: ONE CANDIDATE CPR IN ADULT

1.

*2. 50% of class, selected randomly, must be presented with neck injury.

3. Within 3-5 seconds

*4. If obstructed airway is presented, proceed to adult obstructed airway sheet.
Without obstructed airway - 4 ventilations to be given.

2 points - chest rises 3-4 times
1 point and absolute satisfied - chest rises at least once
0 points - no chest rise

*5. 2 points - within 5-10 seconds
1 point and absolute satisfied - within 3-5 or 10-12 seconds
0 points - under 3 seconds or over 12 seconds

NOTE: #4 and #5 must be done prior to starting compressions.

2 points - if done sequentially
1 point and absolute satisfied - if not sequential
0 points - if compressions started before ventilations and pulse check

6.

*7. Pressure over the lower half of the sternum off the xyphoid process.

2 points and absolute satisfied - maintained throughout. Otherwise - 0 points.

*8. Rate of 75-90 per minute.

2 points - rate maintained 100% of the time
1 point and absolute satisfied - rate maintained 75% of the time
0 points - other

Fig. 1. A score sheet and the related criteria list for evaluating one EMS skill. (Provided by the Texas Department of Health)

to go into even more detail—to check each major teaching point concerning each objective. Here are examples of objectives that might need to be tested:

- Given a list of results of unconsciousness, the student should be able to select the result that most endangers the toxic-inhalant patient.
- Given that a patient is a near-drowning victim, the student should be able to list at least seven steps of treatment to be followed. The student must list those seven steps in their correct sequence in order to complete this objective.
- Given a list of statements, the student should be able to select the statement(s) that is (are) true about cells. The statements will concern basic principles of cell function, cell specialization, and cell structure.

Each of these objectives gives a clue as to what information should be covered and what the wording of an actual question might be. Forms of questions will be covered later in this chapter. For now, the most important fact to remember is: an instructor can't be sure that students are meeting an objective unless it is covered in some kind of evaluation. Testing and evaluation deserve as much thought and care as any other part of instruction.

Intervals for evaluating. Most often, the same objectives are tested two or more times in each course. An instructor may choose to evaluate learning after each lesson, as well as after each unit. Also, the same material may be covered in a module test, or even a test at the end of the course. In EMS training, the students and instructor look forward to successful completion of a state examination for certification.

There are advantages and disadvantages for each interval for evaluation. Presenting a written test after an instructor-developed lesson can take considerable time. Yet it can also show where something has gone amiss either in the teaching or the learning. Frequent tests over small amounts of material may enable testing for each stated objective. Tests at longer intervals save time, but they may have to be pruned to fit into a class period. The shortened test then may not cover every objective. Tests at longer intervals can show how well students are retaining the information over a period of time. A surprising amount can be forgotten in a few weeks. The mix of advantages and disadvantages shows why tests are generally given at several intervals.

Types of tests. Tests can be classified in a number of ways. One way is by whether a test is written or oral. An instructor may ask a few questions at the end of the application step to help determine if the students have been learning. This may also point to a need for reteaching certain points. Such oral questioning is unlikely to cover enough information with any one student to be used for grading. Actual oral tests used for grading are therefore rare.

The written test is usually divided into two groups: the subjective and the objective. These reflect the nature of the judgment required for grading. A subjective test is the familiar kind in which the instructor asks a question that requires a written answer—a sentence, paragraph, or essay. Grading, or judging, such a test depends partly on how well the student writes and partly on the grader's subjective (or personal) reaction to such things as neatness, clarity, spelling, and reasoning. Several graders might score the same answer differently. Subjective tests are rarely used for EMS training.

Objective tests, on the other hand, can be graded objectively—with little or no personal judgment involved. Objective tests may take a while to prepare, but they require less time to take and to grade. If they are written carefully, they can have learners do anything from simple recall, or recognition, to careful reasoning. Here are two examples from a state certification examination:

WHICH OF THE FOLLOWING IS CHARACTERIZED BY COLLAPSE OF THE ALVEOLI?

A. ATELECTASIS
B. CHRONIC BRONCHITIS
C. BRONCHIAL ASTHMA
D. EMPHYSEMA

The above is a simple recognition question. The learner has to remember only whether A, B, C, or D is characterized by collapse of the alveoli.

This second example is more sophisticated. The learner has to thread her (or his) way through a series of facts about the

patient before deciding which of four alternatives listed is the correct one.

YOU ARE TRANSPORTING A PATIENT WHO HAS A SUCKING CHEST WOUND SECONDARY TO A GUNSHOT. THE WOUND HAS BEEN SEALED WITH AN OCCLUSIVE DRESSING. EN ROUTE, YOU NOTICE THAT THE PATIENT'S RESPIRATIONS ARE BECOMING LABORED. HE IS CYANOTIC, HIS NECK VEINS ARE DISTENDED. HIS PULSE IS RAPID AND THREADY, AND HIS TRACHEA IS DEVIATED AWAY FROM THE INJURED SIDE. YOU SHOULD SUSPECT:

A. TENSION PNEUMOTHORAX
B. SIMPLE PNEUMOTHORAX
C. CONGESTIVE HEART FAILURE
D. A PULMONARY EMBOLUS

Of the types of questions asked on objective tests, simple recall and recognition are most common. Simple recall asks the student to fill in a blank to make a correct statement, or respond to a requirement. The second objective, on the first page of this chapter, could be addressed in a simple recall question format.

OBJECTIVE: Given that a patient is a near-drowning victim, the student should be able to list at least seven steps of treatment to be followed. The student must list those seven steps in their correct sequence in order to complete this objective.

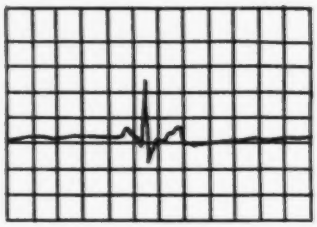
THE QUESTION: List the seven steps of treatment that must be followed for a patient who is a near-drowning victim. They must be in their correct order.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

This example and its answer are similar to what the student would have to do in the field—remember the seven steps of treatment and perform them in the correct sequence.

A recognition test supplies answers, but requires that the student select the most plausible answer. The examples concerning the collapse of the alveoli and the patient with the sucking chest wound were examples of recognition test.

Recognition tests can also include illustrations with information that lead to an answer. Here is an example from a certifying examination:



(REFER TO STRIP ABOVE)
THE ATRIAL RATE IS:
A. 30-40 PER MINUTE
B. 40-50 PER MINUTE
C. 50-60 PER MINUTE
D. 60-70 PER MINUTE

What makes a test good?

1. It measures student understanding accurately.
2. The action taken by the student is similar to that done on the job—as in the question requiring a list of seven steps in their correct order.
3. It contains questions and provides answers that are clear, concise, and complete.
4. It is easy to give, correct, and score.
5. Questions are valued fairly and accurately.
6. Its layout is neat and consistent.

Writing multiple choice questions. A multiple choice question may start with a question or with the first part of a statement:

WHICH OF THE FOLLOWING IS INDICATED BY ABNORMAL BREATH SOUNDS?

or

THE PRESENCE OF ABNORMAL BREATH SOUNDS MAY INDICATE:

When writing the first part, or introduction, of a multiple-choice question, these precautions should be remembered:

1. Be certain it is clearly written. It helps to have someone else read it for clarity.
2. Don't use terms related to the occupation unless the student can be expected to know them. What may be appropriate for a later test may not be appropriate for an earlier one.
3. If abbreviations and/or symbols are used, they should be acceptable to the occupation.
4. Avoid using these terms as much as possible. They tend to give away the answer: totally, entirely, only, alone, all, no, not, always, never, almost, as a rule, generally, many, often, frequently, soon, seldom, and few.
5. Pay close attention to the form of articles (a, an) and verbs (do, does and were, was). They can give away an answer because they signify that only one answer would make the completed statement grammatically correct.
6. Avoid questions that give away the answer to a previous question.

After each introductory statement or question, at least four possible answers should be provided. This number of answers reduces the chances of a guess being right to one chance in four (one chance in five for five answers). Here are some cautions to remember in providing answers:

1. All the answers should be plausible. Including an absurd or outlandish answer increases the chance of a guess being right.
2. They should all be in the correct form for an answer to the specific introductory question or statement. If the correct answer would logically be a name for something, then all four answers should be a name for something.
3. Avoid consistencies. Don't always use the same letter for an answer; it would provide an unwanted clue. So would a pattern such a A, B, C, D, A, B, C, D. Always making the correct answer either shorter or longer than the incorrect answers is another clue.
4. Grading will be easier if the answers to multiple-choice questions are aligned vertically. This makes the use of a test key possible.

Writing recall questions. Questions that require learners to fill in blanks are much more difficult to grade than multiple-choice questions, and so are less often seen on certifying examination. They do have the advantage of requiring students to remember something, rather than just recognize it (as in multiple-choice questions) or guess at it (as in true-false questions). For this reason they can be useful on tests given during the course.

Two advantages justify the additional effort of grading fill-in-the-blank questions. They give the instructor excellent information about the progress of individual students. They also point to areas that students are consistently missing. The latter makes it possible to modify future instruction to emphasize such areas.

The six recommendations about writing multiple-choice questions also apply to writing recall questions. They should be clearly written, and not have any occupational terms that the students have not yet seen. Any abbreviations or symbols used should be acceptable to the occupation. Certain terms, such as "entirely," should be avoided because they can give away the answer. Articles and verb forms can also give away an answer. A question should not answer a previous question.

These additional recommendations are helpful:

1. The question should be answered in only a few words—one, two, or three, if possible.
2. Blanks should be uniform in length, and answers should have only one blank, no matter how many words are needed.
3. Grading will be easier if (a) blanks are near or at the end of a sentence, or (b) blanks are placed in the margin. These placements make use of an answer key simpler.
4. Like other forms of questions, fill-in-the-blank questions should show that an objective is being met, that it is not just pulled from a textbook at random.

6

Initiating and Operating a Course

Successful instruction relies to a large extent on what is done by the instructor before the class meets. The instructor may have to make elaborate plans and handle many details vital to the smooth operation of a course. Although requirements and demands on an instructor may vary from course to course, all courses have some important factors in common.

An instructor may occasionally share laboratory or classroom facilities with another instructor. Even if this does not happen, the instructor will have to cooperate with school or health institution officials on certain matters. Making mutual arrangements, or having agreements with the appropriate person or persons, can help smooth the way.

Before beginning a course, the instructor should consult and cooperate with other people to get answers to these questions:

1. What times can lab and classroom facilities be used by the instructor's group and its members? When is the room available for regular sessions? When will it be available for setup for each session? When can students practice, drill, or study in the room? Where else might they do these things?
2. To what extent is the instructor accountable for loss of or damage to instruments, equipment, materials, and supplies? What procedures can be worked out and followed to minimize loss, breakage, and damage?
3. What are the routine procedures (and who are the persons to contact) to obtain what is needed for instruction?
4. Where and how can the instructor get the things that are needed when the usual supply channels are closed? Whom can an instructor call after hours? Can the instructor buy materials and supplies and be repaid?
5. Where and how should the instructor report damage, loss, and need for repairs?
6. Who is responsible for custodial services? What clean-up and put-away service should the class members provide? Should they close windows? What else?
7. What storage is available? For coats and other belongings? For teaching aids and notebooks and similar items? For materials, equipment, and supplies used in training?
8. What should be done in emergencies? Where are the fire alarms? Extinguishers? Hoses? Fire escapes? Where can help be found in case of a fire? Where are the first-aid kits? Are there trained individuals who might help in fires and other emergencies? How can ambulance service be obtained if needed? Where should fires and accidents be reported?
9. When fire hazards and safety hazards are found, how can the instructor get them repaired? Who is responsible for correcting them?

It is important to get answers to these questions because an instructor may be responsible for both the safety of the students and the condition of the equipment and facilities used. An instructor who is negligent may be legally liable for injury to a student. Almost always, an instructor is subject to disciplinary action from an employer. To protect against loss of supplies, materials, and equipment, the instructor needs to have a way of keeping track of them while still making them convenient for students to use.

Making an Inventory and a Safety Survey

Before assuming responsibility for either the facilities or the safety of the students, the instructor should make an inventory of the facilities, equipment, and supplies—as well as locate and correct any unsafe conditions.

Objectives of an inventory are to:

1. produce a list of all items, and a description of their condition, so the instructor will not be held unfairly responsible for loss or damage;
2. make it possible to order any missing equipment or needed supplies; and
3. make it possible to arrange for all instruments and equipment to be put in satisfactory operating order for use in training.

A safety survey will look for these things:

1. instruments that are dull, worn, broken, without proper handles, or the wrong size or kind for the procedures to be carried out;

2. equipment items that are too close together or in the wrong places, likely to shock, without proper safeguards, broken, improperly adjusted, or otherwise not suitable or safe for use;
3. clothing that is not appropriate for the situation;
4. materials that are flammable, poisonous, or stored in a dangerous way;
5. dangerous conditions, such as exposed electrical wiring, bumps or holes in the floor, projecting objects, defective equipment, inadequate lighting, slippery floors, insufficient ventilation or poor venting of dangerous fumes; and
6. safety equipment (such as first-aid kits, fire extinguishers, rubber mats, goggles) that is inadequate, too old, inoperative, or too difficult to find or reach.

This list is probably incomplete. An instructor should research to find safety-related situations peculiar to EMS training and to the location where it is to be given.

EMS Training Paperwork

The EMS training coordinator is the person most responsible for paperwork related to training. Even so, the instructor should find out early exactly what records, reports, and requisitions he or she must make. Although some forms are used by most programs, others are required only locally.

Depending on the course, as well as the school and other organizations involved, an instructor may do a varying amount of paperwork. In some situations the instructor may be partly responsible for finding out what is required. Even before actual teaching begins, the instructor should determine what kind of paperwork will be needed.

The three common types are requisitions, reports, and records.

Requisitions are used to obtain supplies, equipment, materials, and services. A school or other organization may require an instructor to complete special requisitions for:

1. regular supplies or materials;
2. equipment;
3. emergency purchases;
4. duplicating services (for items such as handouts); and
5. instructional and medical equipment.

Reports are used to tell someone else something the instructor wishes, or is required, to tell. A report may go to local, state, or federal authorities. It may go to any school, company, institution, or governmental organization that cooperates or is somehow responsible for training. Reports are usually required for:

1. accidents;
2. attendance;
3. enrollment;
4. results of tests and examinations; and
5. number of successful trainees, their names, and other details.

Records are kept by the instructor for personal use and for preparing reports. They may help when backing something up on a report, or if something goes wrong. Records can also justify expenditures or decisions. They can show that training and classroom management were conducted in the right way—or the wrong way. Common types of records show:

1. attendance at each session, and for each person;
2. tasks performed by each student during training;
3. the books and other teaching materials that are checked out for class use;
4. results of tests and examinations;
5. use of supplies and materials;
6. condition, breakage, and loss of equipment, instruments, and other items; and
7. repair and other servicing of equipment.

The inventory made at the beginning of a course is an important record. The instructor may want to have a similar inventory when training has been completed. Also, a record of the safety survey and resulting actions taken to correct hazardous conditions should be kept.

Regardless of what kind of paperwork is required of an instructor, these recommendations will always prove useful:

1. All paperwork should be accurate, complete, neat, and legible.

2. Because of the importance of accuracy and completeness, and because human memory is not entirely reliable, it is

important to gather data on an "as-you-go" basis. When something occurs that should be recorded or reported, make a note of it at that time.

3. Reports should be filed promptly. Be certain to allow enough time to prepare each report. It may be possible to use an assistant from the class to help with the detail work of keeping records and making reports.

4. Don't forget that a record is most helpful when it can be quickly and easily located. File records in a way that will make it easy to retrieve them.

A good method of operation to use when dealing with paperwork is:

1. Write a schedule of the course with enough detail to know exactly what will be needed, and when.

2. Determine what requisitions or other actions will make it possible to get what is needed, when it is needed.

3. Find out what reports will have to be made, and when.

4. Set up a record system that will provide data for each of the required reports when it is needed.

5. Enrich the record system so it contains other information that might somehow prove useful.

Preparing for Class to Meet

Before each gathering for a lesson, several things need to be done:

1. Check out the room, especially if you are not familiar with it. It should be comfortably warm or cool, and have adequate lighting for the tasks at hand. Students should be able to see demonstrations and visual aids. There should be enough space for demonstrating or practicing skills. Adequate ventilation is needed. Cleanliness should meet the highest standards of the occupation, especially for clinical situations. To add realism to training, the work area may be arranged as it would be in real life. Aisles should be clear, for quick exit in an emergency.

2. Make sure that the necessary medical equipment, educational equipment, and teaching aids are ready to use. A complete lesson plan that lists all such items will be helpful.

Control of Groups

Setting a definite routine and following it will make it easier to keep a group of trainees under control. Decide on and announce times for:

1. starting class;
2. breaks for food, smoking, coffee, rest, or restroom;
3. cleanup, especially if students are to help put things away; and
4. ending class.

Each trainee should be told the specific attendance requirements, including rules on lateness. A system for reporting tardiness and absences is necessary.

Dress codes are important, especially for clinical and other hospital areas, or ambulance internships.

Because accidents often happen through human error, the instructor should be alert to whether students are tired or careless, have bad attitudes or are involved in horseplay, or lack safety information.

Course outlines for EMS training often allow for a short orientation to the course and the situation at the first. Training institutions may provide printed materials for orientation. It is important for students to receive the following information early in the course.

1. Course objectives, both general and specific. The instructor can show students what they will gain with successful completion of the course. He or she can stress standards the students need to meet in skill, knowledge, and attitude. Because so much of a typical course is devoted to skills and knowledge, this is one of the best opportunities for emphasizing the importance of a good attitude in doing, and keeping, a job.

2. Whom they should consult about particular problems.

3. What agencies are cooperating to give the training, and why.

4. How the students of this class relate to other groups, if the facilities are shared.

5. Students' responsibilities concerning the use of supplies and equipment, out-of-class study, and the individual group practice.

6. Who their instructor or instructors will be—including their professional background and, possibly, why they are teaching.

7

121 Useful Insights and Recommendations

1. This is a capsulized overview of what has been covered before. It is meant to help you remember, not to replace the knowledge that would come from reading specific chapters and topics.

2. Reading the contents page and the foreword may also prove useful in forming a perspective of the material.

3. The U.S. Department of Transportation materials for EMT and related EMS training are part of a training system that begins with determining what EMS activities people do on-the-job, and leads to preparing and certifying other people for joining them.

4. What is taught in EMS training courses can vary since they reflect the decisions of different authorities, each of whom have specified responsibilities.

5. EMS training focuses on skills, knowledge, and attitudes needed to do these specific jobs.

6. In the training program, the instructor is the most important link. He or she, as the professional present, has the major share of responsibility for the program's outcome.

7. The three principles of learning can be used to plan and give instruction.

8. The principle of readiness says a person learns when ready to do so.

9. The principle of effect says a person should get some satisfaction from the effects of the learning process.

10. The principle of exercise says people learn from practice and like to repeat things they do well.

11. For readiness: motivate, explain expectations, make people comfortable.

12. For effect: make instructions clear and methodical, use several senses (have people say and do things), explain the unknown in known terms, teach from simple to complex, use group and individualized instruction as appropriate, reward success directly, shorten presentations, and test fairly soon after completing a lesson.

13. For exercise: provide plenty of time for well-supervised practice.

14. The four steps of instruction: Step 1, **Preparation** of the learner; Step 2, **Presentation** of the material; Step 3, **Application** of the material (by the students); and Step 4, **Evaluation** of the results.

15. Understanding the four steps will help an instructor be more effective even when working from someone else's outline. However, an instructor may want to plan some lessons using a Lesson Plan form provided in the appendix.

16. When instructing, stand tall and where everyone can see you.

17. It is all right to move about while teaching, but don't do it continuously or too quickly.

18. Look at the audience, to gauge effectiveness of your teaching and to hold attention.

19. Use meaningful gestures and avoid distracting mannerisms.

20. Change facial expressions as appropriate.

21. Vary your rate of speech—speak slowly for difficult material, more rapidly for easily understood facts. From 100 to 150 words a minute is a good speed.

22. Vary speech volume.

23. Use a conversational tone.

24. Except for technical terms, use words familiar to students.

25. Vary sentence structure. In particular, try questions.

26. Speak with enthusiasm.

27. Don't worry about occasional silences.

28. Periodically, use a relevant humorous story.

29. For skill instruction, it is possible to divide the major skills of an EMT or other level of technician. The D.O.T. material provides many specific objectives for skills to be mastered. A demonstration or skill lesson may cover one or more skill objectives.

30. A demonstration gives clues as to what related information should be taught, immediately or at some other time.

31. Skills lessons may develop abilities related to sight, hearing, and touch.

32. Skills lessons often require learning terminology and specific information—especially the steps and key points required to make the major skill, procedure, or task succeed.

33. A useful outline for skills instruction is a Task Breakdown Sheet, which shows steps and key points side-by-side in a two-

column format. This Breakdown Sheet serves several needs.

34. A key point is a detail followed in doing a step to prevent failure, improve performance, or provide for safety.

35. Using a Task Breakdown Sheet can ensure all steps and key points have been recognized and included. The analysis can be more complete if someone else helps analyze while also observing the actual task.

36. To get ready for a skills lesson, have everything needed on hand; practice the demonstration before the lesson; be sure everyone can see the demonstration; and arrange the work area as it should be kept.

37. In teaching a skills lesson, demonstrate and explain each step and key point, one at a time; instruct clearly, completely, and patiently; use visual or audiovisual aids if appropriate; and meet specific goals or objectives.

38. For the application step, have the task or procedure repeated under careful supervision until it is mastered; start students slowly, one step at a time, explaining key points; correct mistakes immediately; have students do the task the same way each time; repeat supervised practice at regular and frequent intervals; if needed, provide an aid so that students can practice individually and correctly; gradually withdraw supervision until you are certain that evaluation is appropriate.

39. A sincere compliment can improve learning. Use judgment and don't overdo. But remember improvement can merit a compliment. Be prompt with compliments, but consider repeating them at the end of the day or period.

40. Avoid criticism of the "bawling out" kind. Compliment before you correct, if it's sincere. Let the learner do the correction. Don't overdo correction, and try to avoid it in front of other people. Don't blame a student too quickly—the mistake may be the result of your teaching. Be prompt with corrections.

41. Related-information lessons teach the knowledge needed to do a major skill, procedure, or task correctly.

42. Related information may be taught separately before the skills to which it relates.

43. Extra effort may be needed to motivate students for a related-information lesson. Telling how the related information helps will aid learning.

44. Usually, the presentation is a short, illustrated talk which leaves time for application and possibly evaluation. A class period may include more than one lesson.

45. Various teaching aids are used in the presentation.

46. The evaluation may be a simple oral test or a written test. It may be given immediately or later. Each way has its advantages and disadvantages.

47. In preparing to teach, the instructor starts with the knowledge objectives and topical outline for that particular module, unit, or lesson plan.

48. Objectives and information in the topical outline help the instructor decide whether to teach one lesson or more, how to prepare, what to do during teaching, where teaching aids are needed, how to motivate students, what handouts might be useful, where oral questions might help, when to use group or individualized instruction, and what students should read or do in assignments.

49. The objectives help the instructor develop a test.

50. The two-column format is used in a related-information lesson to show the topics on the left and the detailed information on the right.

51. For the application step, the instructor arranges for students to say, do, or write something to aid learning.

52. Group instruction often saves time. It provides uniform instruction, develops team spirit, develops leadership, and is good for basic facts and elementary principles. It can motivate students, can involve peer teaching, and can be used to teach small groups skill lessons.

53. Individualized instruction can make teaching more thorough and can make instruction easier. It allows for differences in speed of learning, provides opportunities for remedial work, and offers varied instructional techniques.

54. Directed activities for individualized instruction often have students locate information in reference sources, then do something with that information. This can supplement other instruction, save time in teaching, help slower learners catch up, enrich instruction for advanced students, and create and maintain interest. Directed activities should be supervised by the instructor, and not be used as a substitute for other instruction.

55. Two useful forms for directed activity are information sheets and assignment sheets. Copies for reproduction are in the appendix.

56. An information sheet is meant to present information, and is usually considered part of the presentation step.

57. Assignment sheets help students "apply" information. But they can also help present information.

58. Both types of sheets are especially helpful in teaching terminology for EMS training.

59. Visual and audiovisual aids include display, three-dimensional, projected, and video terminal aids.

60. Visual aids show something; to them, audiovisual aids add sound, usually on tape.

61. Visual and audiovisual aids can show something hidden; simplify a complex device; show something too large to bring to class; show relationships between parts or units; magnify small things; illustrate scientific principles; demonstrate motions that are difficult to describe; compare something new to something already known.

62. Display aids are suitable for showing to entire groups at once.

63. A three-dimensional model can be seen, touched, examined, and often operated.

64. A mock-up is an unnatural arrangement or layout of real parts of an object.

65. Projected aids are useful for group or individualized instruction.

66. Color slides (2" x 2"), provide great realism, are cheap to make and buy, and can be rearranged, added, or deleted by the instructor.

67. Filmstrips have most of the same qualities, but cannot be edited. They may take less storage space and can be cheaper to buy than slides.

68. An opaque projector can show actual objects or images on sheets of opaque paper. Little or no preparation time is needed.

69. Overhead projectors use transparencies, easily copied by machine on plastic, from masters made by the instructor or someone else. The master can be made relatively easily and quickly. One caution: typewriter type is rarely large enough to read when projected from a transparency.

70. Motion pictures give great realism, are good for overall impressions, avoid noise distractions of site visits, can show something far away, avoid having students get in the way on a site, give a safer view, and are good for motivation. But, they should be carefully reviewed before use.

71. Video terminal aids are similar in application to motion pictures, but images aren't projected as large and are best for individual or small group study. They are often good for practice and drill, and more are being used for computer-assisted instruction.

72. A good aid will clarify something that can't be clarified without it, and should:

a. be usefully visible to the entire group;
b. have lettering that can be read by everyone;
c. use terms viewers can understand or need to learn;
d. have important parts accentuated;
e. be made to scale;
f. be made with good materials;
g. be well made and carefully finished;
h. be mounted and easily portable; and
i. be protected in some way.

73. When using an aid, know what it is to do and preview it to be sure it does that; plan what to say before, during and after use; rehearse with the aid; have everything ready to use; draw chalkboard drawings ahead of time; cover the aid until it is used to avoid distracting students.

74. Aids are more effective if they aren't used as substitutes for the instructor, but involve explanations, questions, and application activities; they are shown at the proper time; the instructor speaks to the group, not the aid; they aren't passed around during the instructor's discussions; they are carefully introduced so students know what to look for; they are summarized afterwards; and, if necessary, they are reshown to put across missed information.

75. For effective chalkboard work, do not crowd the board; have simple material and concise statements; plan presentations ahead of time, with layouts; have everything ready to use; check lighting to avoid glare; use color for important points, chrome yellow or pale green; print captions and drawings large enough for everyone to see; erase

material as new material is added, using eraser or cloth; keep chalkboard clean; draw complicated layouts before class.

76. When selecting or making aids, be certain what points each is to teach; select the type of aid that best fits requirements and capabilities; search through teaching points to find where aids are most needed; use words adapted to the purpose of the instructor.

77. Oral questions can motivate learners, encourage participation, help determine if learning is taking place, clarify or stress a point, hold attention, and review material.

78. Four brief rules for oral questions are:

a. answering should require thought;
b. a question should be brief and easily understood—if it is not understood, rephrase it immediately;
c. a question should be limited to one main thought; and
d. a question should have one specific purpose, limited to the subject at hand.

79. The sequence for questioning is (1) ask the question, (2) give everyone a chance to think about it, and (3) select a person to answer. (Do not use a routine in determining who is to answer next.)

80. The basic questioning words are "why," "what," "when," "who," "which," "where," and "how." Some questions begin with commands, such as "define," "summarize," or "list."

81. Define terms early in the lesson if they are to be used several times.

82. If objectives include learning certain words, define them at the time they are introduced.

83. Use both hearing and sight—speaking and visual aids.

84. Teach word pronunciation.

85. Provide for repetition.

86. Provide for application.

87. Make use of prefix, suffix, root-word approach to teaching terminology.

88. Always stress the importance of mastery.

89. Skills are usually evaluated several times during training. In Step 4, Evaluation, the instructor has students perform skills that meet skills objectives for that lesson. Later, the state certifying examination may combine several skills objectives while evaluating a major EMS skill. The instructor may want to use a similar evaluation before the official one.

90. Evaluations usually consider the sequence of steps as well as key points for each step. Some steps and key points are "absolutes"—must be done correctly to pass at all. Others are scored on a sliding scale. It is helpful to get score sheets and criteria lists from certifying authorities.

91. To make grading more fair and thorough, have a scoresheet and a criteria list; make sure that all students get the same instructions, written if necessary; be certain students know on what they will be graded; keep testing conditions the same from student to student; have accurate means of measuring factors such as elapsed time; avoid making students tense; do not give instructions during evaluation, except those needed to clarify original instructions.

92. A good test of related information begins by analyzing results expected—as in the knowledge objectives. Each teaching point for these may need to be considered. Wording of the objective gives clues as to both what to evaluate and what the actual question(s) might be.

93. Testing may be done several times. A test right after a lesson can take considerable time, but will show immediately if something wasn't learned. It can cover all objectives. Tests at greater intervals save time, but may have to be pruned to fit into a class period and so not cover all objectives. They do show retention over a longer period of time.

94. Oral questions asked after the application step help determine if learning has taken place, but often don't show how much individuals have learned, and thus are rarely used for determining grades.

95. Written tests are common, and can be subjective or objective. A subjective, or "essay," test requires more judgment to grade, and may consider things such as neatness, writing ability, clarity, spelling, and reasoning. Subjective tests are rarely used in EMS training.

96. Objective tests can be graded with little or no personal judgment. They take more time to prepare, but less time to give and grade. If carefully written, they can cover recall, recognition, and reasoning ability.

97. Simple recall tests have students fill in the blanks. Recognition tests offer mul-

tiple choices. The recognition form can also be set up in a way that requires reasoning.

98. A test may include illustrations.

99. A good test measures student understanding accurately; requires action similar to that used on the job; has questions and answers that are clear, concise, and complete; is easy to give, correct, and score; has questions valued fairly and accurately; and is neat and consistent in layout.

100. For multiple choice questions, the introductory statement or question should be clearly written, using only acceptable abbreviations or symbols; should not use unfamiliar terms; should not use terms, articles, or verbs that give away the answer; and should not answer previous questions.

101. Have at least four alternatives for each multiple choice question.

102. All choices should be plausible, and should be in the correct form to match the introduction.

103. Avoid consistency in answer coding—such as A, B, C, D, for consecutive correct answers.

104. Arrange multiple choice answers in the same vertical line for the easiest use of an answer key.

105. Recall, fill-in-the-blank, questions are more difficult to grade than multiple-choice questions. But they do call for students to remember something, rather than just recognize it. Their answers cannot be guessed at, like those for true-false questions.

106. Recall questions should be clearly written and should not use unfamiliar terms. Abbreviations or symbols used should be acceptable to the occupation. Terms or word forms that give away the answer should be avoided. A question should not answer a previous question.

107. Recall questions should be answerable with only a few words. They should have blanks uniform in length, and allow only one blank to an answer; for grading ease, they should have blanks at or near the end of the sentences, or in margins. They should meet specified objectives.

108. An instructor may have to deal with plans and details other than those of instruction—including room and other arrangements, inventory, safety, paperwork, and preparing for class to meet.

109. Things to check on include:

a. when and what facilities can be used for setting up, instruction, practice or drill sessions, or study;
b. instructor accountability for loss or damage to instruments, equipment, materials, and supplies;
c. procedures for minimizing loss, breakage, and damage;
d. routine procedures to use, and persons to contact, for instructional needs;
e. what to do when routine supply channels are closed;
f. whether the instructor can buy things and be repaid;
g. where to report damage, loss, and need for repairs;
h. who is responsible for janitorial services;
i. what storage is available;
j. what should be done in emergencies; and
k. how can fire and safety hazards be corrected.

110. An instructor may be responsible for the students' safety and the condition of equipment and facilities.

111. An inventory can provide a list of all items and their condition, making it possible to order missing items and repair whatever needs repairing.

112. Safety surveys look for instruments that are, for some reason, dangerous or inappropriate for use; equipment too close together or in the wrong places, or otherwise not suitable or safe for use; inappropriate clothing; materials that are dangerous, poisonous, or stored in a dangerous way; dangerous conditions, such as exposed wiring, or bumps or holes in the floor; projections; poor ventilation; poor lighting; defective equipment; slippery floors; and the location of safety and first-aid equipment.

113. An instructor may have some responsibility for requisitions, reports, and records.

114. Requisitions are used to obtain items, including regular office supplies and emergency purchases, materials, equipment, duplicating services, and instructional and medical equipment.

115. Reports tell someone else what the instructor wishes to tell or is required to tell. Reports are usually required for accidents, attendance, enrollment, results of tests and examinations, and the number of successful trainees, their names, and other pertinent details.

116. Records are kept by the instructor for personal use, and for preparing reports to other people. They can back up something on a report, or help when something goes wrong. Records commonly show student attendance at each session; tasks performed by each student during training; books and other teaching materials checked out; results of test and examinations; use of supplies and materials; condition, breakage and loss of various items; and repair and other servicing of equipment.

117. The pre-course inventory and the safety survey are important records. A post-course inventory could prove helpful, as could a record of actions to correct hazardous conditions.

118. All paperwork should be accurate, complete, neat, and legible; should have data gathered on an "as-it-happens" basis should have reports filed promptly; and should be placed where it may be quickly and easily found.

119. The following approach can help with paperwork.

a. Schedule the course in enough detail to know what is needed.
b. Determine what requisitions or other action will get what is needed when it is needed.
c. Find out what reports will have to be made, and when.
d. Set up an adequate record system for required reports.
e. Enrich that system with other potentially useful information.
f. When preparing for class to meet, check out the room. Temperature, light, visibility, demonstration space, practicing space, and ventilation are important. So is cleanliness.
g. When preparing for group to meet, be certain everything needed for teaching is on hand. A complete lesson plan helps.

120. Control of the group is important.
a. Decide on and announce times for beginning class, breaks, cleanup (if students do it), and ending class. Breaks can include those for food, smoking, coffee, rest, or restroom.
b. Announce specific attendance requirements, including lateness rules. Have a system for reporting tardiness and absences.
c. Have dress codes appropriate for the situation.
d. For safety, be alert to student fatigue, lack of safety knowledge, bad attitudes, carelessness, or horseplay.

121. A short orientation to a course can encourage group interest and help maintain control. EMS courses often allow for such an orientation. Orientations offer important information:
a. general and specific objectives of the course—including what the student will gain, and must do to succeed;
b. whom to consult on particular problems;
c. which groups are cooperating in giving the training;
d. how students relate to other groups in shared facilities; and
e. student responsibilities for supplies and equipment, study out of class, and practice.

Appendix A

FORMS FOR COPYING

The following may be reproduced without permission.

Lesson Plan (5 sheets)
Task Breakdown Sheet (2 sheets)
Information Sheet (1 sheet)
Assignment Sheet (1 sheet)

Page _____ of _____

LESSON PLAN FOR: _____

CODING: _____ DATE PREPARED: _____

OBJECTIVES TO BE COVERED:

Page _____ of _____

MEDICAL EQUIPMENT, SUPPLIES NEEDED:

TEACHING AIDS NEEDED:

EDUCATIONAL MATERIAL NEEDED:

REFERENCES USED:

WORKBOOK OR OTHER INDIVIDUALIZING AIDS:

PREREQUISITE FOR LEARNERS:

STEP 1: PREPARATION OF THE LEARNER

STEP 2: PRESENTATION OF THE INFORMATION

STEP 3: APPLICATION

Page _____ of _____

STEP 4: EVALUATION OR FOLLOW-UP

Page _____ of _____

TASK BREAKDOWN SHEET:

☐ MAJOR SKILL: _____

☐ PROCEDURE: _____

☐ TASK: _____

Coding: _____ Date Prepared: _____ Preparer: _____

IMPORTANT STEPS (What to do, in correct sequence)	KEY POINTS FOR EACH STEP (How, when, where, who, etc.)
	It's a key point if failing to observe it causes failure. It's a key point if doing it improves performance. Safety is always a key point.

Page _____ of _____

TASK BREAKDOWN SHEET FOR: _____

IMPORTANT STEPS	KEY POINTS FOR EACH STEP

Page _____ of _____

INFORMATION SHEET FOR: _____

CODING: _____ DATE PREPARED: _____ PREPARER: _____

_____

TITLE:

_____

INFORMATION:

Page _____ of _____

ASSIGNMENT SHEET FOR: _____

CODING: _____ DATE PREPARED: _____ PREPARER: _____

_____

TITLE:

_____

INTRODUCTORY INFORMATION:

ASSIGNED READINGS:

QUESTIONS, PROBLEMS, OR ACTIVITIES

Appendix B

Materials and Sources of Materials for EMS Training

Publications on instructing / 64
Ordering the D.O.T.-N.H.T.S.A. materials / 65
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Publications on Instructing

Many excellent publications on instruction and education are available. A good place to start looking is in a school or public library. However, there are so many topics that a card catalog search may be needed first. Check with the reference librarian, or in the card catalog (under LB and LC if using the Library of Congress system). Books on occupational, vocational, and adult education are particularly useful. Libraries may even have books specifically on education for medical occupations.

An excellent series of small, helpful paperbacks are available from Pitman Learning, Inc., of 6 Davis Drive, Belmont, CA 94002. They include:

Analyzing Performance Problems or, 'You Really Oughta Wanta' by Robert F. Mager and Peter Pipe. This book stresses that training isn't everything, and competence problems can develop for other reasons. It is especially helpful for the instructor who will have some supervisory responsibility later—or who knows someone else who will.

Preparing Instructional Objectives, 2nd Edition, by Robert F. Mager, deals with the key to successful training—knowing precisely where you want to go. And it does so quickly, informally, and interestingly.

Developing Vocational Instruction, by Robert F. Mager and Kenneth M. Beach, Jr., introduces the instructor to strategies of instructional development, job descriptions, task analyses, selection of instructional procedures, sequencing instructional units, improving course efficiency, and eight other vital topics.

Developing Attitude Toward Learning, by Robert F. Mager, deals with what can be the most crucial topic of all. He approaches this in a practical and straightforward manner.

Ordering the D.O.T.-N.H.T.S.A. Materials

Often state certifying authorities, or similar agencies, will provide the appropriate publications from the U.S. Department of Transportation, National Highway Traffic Safety Administration. If they do not, the publications can be ordered from the Superintendent of Documents of the Government Printing Office. Do not try to order publications from the Emergency Medical Services Division of the U.S. Department of Transportation. That will only delay your receiving the order.

The D.O.T.-N.H.T.S.A. materials should be ordered following these directions:

1. Order from: Superintendent of Documents
   Government Printing Office
   Washington, DC 20402

2. In your order, include the full title of each publication, its complete stock number, and how many copies are desired. Also include a check or money order for the total cost, payable to "Superintendent of Documents."

The most recent editions available as of September, 1984, are listed below. Note that in some cases, revisions are being prepared.

1. NEW. Emergency Medical Technician, Ambulance (3rd Edition, 1984)		
A. Course Guide	050-003-00421-1	$ 1.75
B. Instructor's Lesson Plans	050-003-00422-7	$10.00
C. Student Study Guide	040-003-00421-9	$ 6.50
2. Refresher Training Program for the Basic EMT (1979)		
A. Course Guide	050-003-00363-8	$ 3.75
(To be used with B and C under Emergency Medical Technician-Ambulance, see #1.)		
3. Emergency Medical Care		
A. A Manual for the Paramedic in the Field (1983)	050-003-00413-8	$13.00
This is a textbook for the trainee and also a reference manual for the paramedic in the field. Workbook is included in the price.		
4. National Training Course for Emergency Medical Technician-Paramedic (for Instructors)		
NOTE—The following Course Guide and 15 Modules are currently under revision, with anticipated publication date in 1985. The revised edition will be a single volume rather than 15 separate publications.		
A. Course Guide	050-003-00279-8	$ 5.50
B. Modules		
I. The Emergency Medical Technician	050-003-00280-1	4.25
II. Human Systems and Patient Assessment	050-003-00281-0	3.75
III. Shock and Fluid Therapy	050-003-00282-8	5.50
IV. General Pharmacology	050-003-00283-6	3.25
V. Respiratory System	050-003-00284-4	3.75
VI. Cardiovascular System	050-003-00285-2	4.00
VII. Central Nervous System	050-003-00286-1	3.25
VIII. Soft Tissue Injuries	050-003-00287-9	3.50
IX. Musculoskeletal System	050-003-00288-7	3.25
X. Medical Emergencies	050-003-00289-5	3.50
XI. Obstetric/Gynecologic Emergencies	050-003-00290-9	3.25
XII. Pediatrics and Neonatal Transport	050-003-00291-7	2.75
XIII. Management of the Emotionally Disturbed	050-003-00292-5	2.75
XIV. Rescue Techniques	050-003-00293-3	1.75
XV. Telemetry and Communications	050-003-00294-2	1.75

5. Emergency Medical Services: First Responder Training Course (March 1979) (Formerly Crash Injury Management for Traffic Law Enforcement Officers)

A. Course Guide	050-003-00360-3	$ 2.00
B. Instructor's Lesson Plans	050-003-00361-1	2.00
C. Student Study Guide	050-003-00362-0	3.50

6. Crash Victim Extrication Training Course—Emergency Medical Technician (Revised 1979)
NOTE: There is not a Course Guide for this course. A complete kit consists of a 54-color-slide (35mm) set and the Instructor's Lesson Plans and Student Study Guide. Order the kit by the full title above and order number AO 1927/DK. The kit must be ordered from:
National Audio Visual Center
General Services Administration
Washington, DC 20409

		$23.00
A. Instructor's Manual	050-003-00343-3	4.75
B. Student's Manual	050-003-00344-1	4.50

7. Dispatcher Training Program for EMTs

A. Course Guide	050-003-00239-9	$ 4.50
B. Instructor's Lesson Plans	050-003-00237-2	6.00
C. Student Study Guide	050-003-00238-1	6.00

A new dispatcher course is under development. It is not intended to replace the above training program. Both programs will be available for purchase.

8. Training Program for Operation of Emergency Vehicles

A. Course Guide	050-003-00330-1	$ 4.75
B. Instructor's Lesson Plans	050-003-00332-8	12.00
C. Student Study Guide	050-003-00331-0	5.50
D. Pursuit Driving for Law Enforcement Officers	050-003-00364-6	4.00

9. Emergency Medical Services—Instructor Training Course
A new instructor training course is under development. It will consist of three documents: a Course Guide, Instructor's Lesson Plans, and a Student Study Guide. Anticipated publication date is in 1985.

10. Air Ambulance Guidelines - National Highway Traffic Safety Administration/AMA Commission on Emergency Medical Services (1981) DOT HS 805-703.
Free, but supply is limited.
NOTE—This is not available from the Government Printing Office. Requests should go to:
Department of Transportation
GSA Distribution NAD-51
Washington, DC 20590

Sources of Visual and Audiovisual Aids

American Academy of Orthopaedic Surgeons (AAOS)
P. O. Box 7195
Chicago, IL 60680
(312) 822-0970
Produces slide presentations and videocassettes for use with the AAOS publication, Emergency Care and Transportation of the Sick and Injured.

American Film Productions, Inc.
1540 Broadway
New York, NY 10036
(212) 582-1900
Produces motion pictures on emergency care and first aid.

Brady Communications Company, Inc.
Bowie, MD 20715
(301) 262-6300
Covers nursing care and emergency and hospital services; offered on 35mm slides, filmstrips, overhead transparencies, audiocassettes, and complete multimedia training systems.

Educational Direction, Inc.
11 Post Oak Road
Westport, CN 06680
(203) 207-3350
Has a film[illegible] on extrication, with tapes.

EmCOM, Inc.
4000 W. 76th Street
Minneapolis, MN 54435
(612) 835-4001
Has film and videocassette training films for emergency medicine.

Emergency Training
181 Post Road West
Westport, CN 06880
(203) 227-3350
Has slides, filmstrips and audiocassettes.

Film Communicators
11136 Weddington Street
North Hollywood, CA 91601
(800) 423-2400
(213) 766-3747
Has motion pictures and slides for emergency medical services.

Health Science Consortium
102 Laurel Avenue
Carrboro, NC 27514
(919) 942-8731

International Film Bureau, Inc.
332 S. Michigan Avenue
Chicago, IL 60604
(312) 427-4545
Distributes videocassettes and 16mm film programs for paramedical personnel, focusing on emergency transport and first aid.

Laerdal Medical Corporation
1 Labriola Court
Armonk, NY 10504
(914) 273-9404
Markets resuscitation, intubation, arrhythmia, and other training aids and emergency medical equipment.

Medical Training Systems
710 Southwest 9th Avenue
Portland, OR 97204
(503) 233-6794
Distributes slides and videocassettes.

Medical Communications Corporation
9329 West 7th Street
Merriam, KS 66204
(913) 362-2758
Has disaster preparedness films.

National Audiovisual Center
Information Services Section
National Archives and Records Service
General Services Administration
Washington, D.C. 20490
(301) 763-1896
Offers films, slides, and tapes.

Video Training Resource, Inc.
7900 West 78th Street
Suite 145
Edina, Minnesota 55435
Produces a complete training series on 16mm films or videocassettes for emergency medical training.

Vocational Instructional Materials Laboratory
The Ohio State University
154 West Twelfth Avenue
Room 139
Columbus, OH 43210-1302
Has nine slide-tape cassette sets on examinations, moving and handling patients, vital signs, anatomy and physiology, and other EMS topics.

Sources of Printed Materials

Abt Books
55 Wheeler Street
Cambridge, MA 02138
(616) 492-7100

American Academy of Orthopaedic Surgeons
P.O. Box 7195
Chicago, IL 60680
(312) 822-0970

American Heart Association, Inc.
7320 Greenville Avenue
Dallas, TX 75231
(214) 750-5300

Aspen Systems Corporation
P.O. Box 6018
Gaithersburg, MD 20877
(301) 251-5000

Bradford Communication Corporation
Bradford Publishing Company
P.O. Box 511
Reseda, CA 91335

William C. Brown Company
2460 Kerper Boulevard
Rockville, MD 20850
(301) 251-5000

Brady Communications Company, Inc.
Bowie, MD 20715
(301) 262-6300

Barnes and Noble Books
10 East 53rd Street
New York, NY 10022
(212) 593-7000

Cover Publishing Company
P.O. Box 1092
Tampa, FL 33601
(813) 886-6818

Davis Publishing Company, Inc.
P.O. Box 841
Santa Cruz, CA 95061
(800) 538-0762
(408) 423-4968
(Note: Davis sells a number of EMT publications that are published by other companies.)

Emergency Training
181 Post Road West
Westport, CN 06880

Exposition Press, Inc.
Box 2120
Smithtown, NY 11787
(516) 582-665

Harper Row Publishers, Inc.
10 East 53rd Street
New York, NY 10022
(212) 593-7000

Little, Brown and Company
34 Beacon Street
Boston, MA 02106
(617) 227-0730

Macmillan Publishing Company, Inc.
866 Third Avenue
New York, NY 10022

Medical Economics Books
Box 157
Florence, KY 41042
(800) 223-0581 Ext. 2755

Morton Publishing Company
295 West Hampden Avenue
Suite 104
Englewood, CO 80110
(303) 761-4805

C.V. Mosby Company
11803 Westline Industrial Drive
St. Louis, MO 63141

Multi-Media Publishing, Inc.
1393 South Inca Street
Denver, CO 80223
(303) 778-1404

National Fire Protection Association
Batterymatch Park
Quincy, MA 02269
(617) 482-8755

NNR Publishing Company
P.O. Box 806
Los Altos, CA 94022
(415) 941-5784

National Association of Emergency Medical Technicians
P. O. Box 334
Newton Highlands, MA 02161

Pan American Health Organization
525 23rd Street NW
Washington, D.C. 20037

Pergamon Press, Inc.
Maxwell House
Fairview Park
Elmsford, NY 10523
(914) 592-7700

Raven Press
1140 Avenue of the Americas
New York, NY 10036
(212) 575-0335

Reston Publishing Company, Inc.
11480 Sunset Hills Road
Reston, VA 22090
(800) 336-0338

Vocational Instructional Materials Laboratory
The Ohio State University
154 West Twelfth Avenue
Columbus, OH 43210-1302

W. B. Saunders Company
West Washington Square
Philadelphia, PA 19105
(215) 574-4792

John Wiley & Sons, Inc.
605 Third Avenue
New York, NY 10158

Williams & Wilkins Company
428 East Preston Street
Baltimore, MD 21202
(301) 528-4221

National Associations

The National Association of Emergency Medical Technicians
P.O. Box 334
Newton Highlands, MA 02161-0334
(617) 894-7179

The National Registry of Emergency Medical Technicians
P.O. Box 29233
Columbus, OH 43229
(614) 888-4484

National EMS-related Periodicals

NAEMT Newsletter
National Association of Emergency Medical Technicians
Box 334
Newton Highlands, Massachusetts 02161-0334

JEMS, Journal of Emergency Medical Services
Jems Publishing Company
Post Office Box 401
Basking Ridge, New Jersey 07920

EMERGENCY, the Journal of Emergency Medical Service
Dyna Industries, Inc.
6200 Yarrow Drive
Carlsbad, California 92008

EMERGENCY MEDICAL SERVICES, the Journal of Emergency Care and Transportation
Emergency Medical Services, Inc.
12849 Magnolia Boulevard
North Hollywood, California 91607

COMPLIANCE STATEMENT

TITLE VI, CIVIL RIGHTS ACT OF 1964; THE MODIFIED COURT ORDER, CIVIL ACTION 5281, FEDERAL DISTRICT COURT, EASTERN DISTRICT OF TEXAS, TYLER DIVISION

Reviews of local education agencies pertaining to compliance with Title VI Civil Rights Act of 1964 and with specific requirements of the Modified Court Order, Civil Action No. 5281, Federal District Court, Eastern District of Texas, Tyler Division are conducted periodically by staff representatives of the Texas Education Agency. These reviews cover at least the following policies and practices:

(1) acceptance policies on student transfers from other school districts;

(2) operation of school bus routes or runs on a non-segregated basis;

(3) nondiscrimination in extracurricular activities and the use of school facilities;

(4) nondiscriminatory practices in the hiring, assigning, promoting, paying, demoting, reassigning, or dismissing of faculty and staff members who work with children;

(5) enrollment and assignment of students without discrimination on the basis of race, color, or national origin;

(6) nondiscriminatory practices relating to the use of a student's first language; and

(7) evidence of published procedures for hearing complaints and grievances.

In addition to conducting reviews, the Texas Education Agency staff representatives check complaints of discrimination made by a citizen or citizens residing in a school district where it is alleged discriminatory practices have occurred or are occurring.

Where a violation of Title VI of the Civil Rights Act is found, the findings are reported to the Office for Civil Rights, Department of Health, Education and Welfare.

If there is a direct violation of the Court Order in Civil Action No. 5281 that cannot be cleared through negotiation, the sanctions required by the Court Order are applied.

TITLE VII, CIVIL RIGHTS ACT OF 1964: EXECUTIVE ORDERS 11246 and 11375; TITLE IX 1973 EDUCATION AMENDMENTS: REHABILITATION ACT OF 1973 AS AMENDED; 1974 AMENDMENTS TO THE WAGE-HOUR LAW EXPANDING THE AGE DISCRIMINATION IN EMPLOYMENT ACT OF 1967; VIETNAM ERA VETERANS READJUSTMENT ASSISTANCE ACT OF 1972 AS AMENDED IN 1974.

It is the policy of the Texas Education Agency to comply fully with the nondiscrimination provisions of all federal and state laws and regulation by assuring that no person shall be excluded from consideration for recruitment, selection, appointment, training, promotion, retention, or any other personnel action, or be denied any benefits or participation in any programs of activities which it operates on the grounds of race, religion, color, national origin, sex, handicap, age, or veteran status (except where age, sex, or handicap constitute a bona fide occupational qualification necessary to proper and efficient administration). The Texas Education Agency makes positive efforts to employ and advance in employment all protected groups.